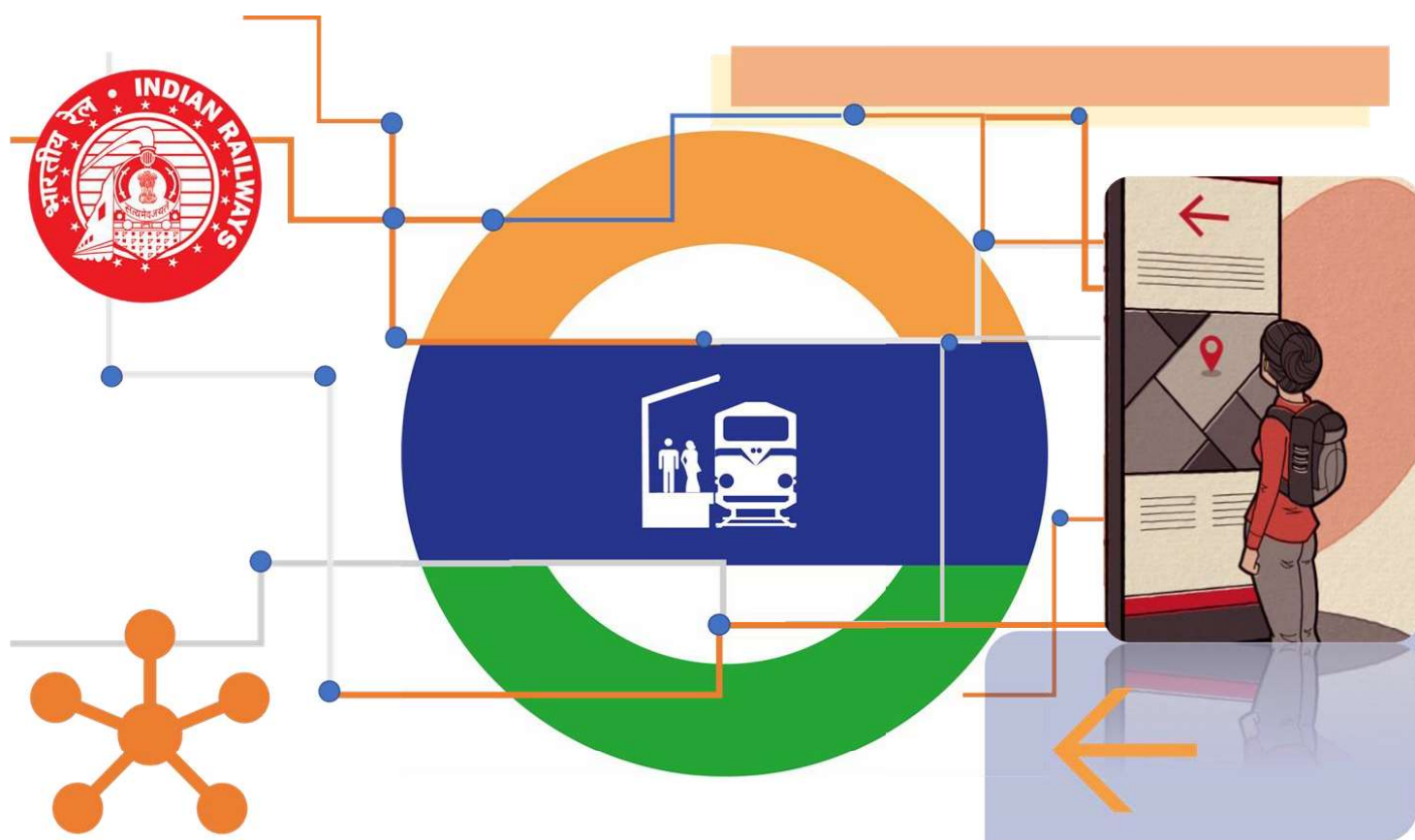


STANDARD SIGNAGES AT STATIONS ON INDIAN RAILWAYS

April 2023



**Ministry of Railways
Government of India**

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**Ministry of Railways
Government of India**

अश्विनी वैष्णव
Ashwini Vaishnaw



रेल, संचार एवं इलेक्ट्रॉनिकी और
सूचना प्रौद्योगिकी मंत्री
भारत सरकार

Minister of Railways
Communications & Electronics and
Information Technology
Government of India



Message

I am pleased to announce the release of the "**Guidelines on Standard Signages at Stations on Indian Railways, 2023**". As we continue to modernize Indian Railways, our focus on redeveloping railway stations across the country has become a major step towards empowering the economic growth of our nation. The redevelopment of more than 1200 Amrit Bharat Stations and their surrounding areas will enhance the passenger experience at railway stations and will integrate various modes of transport with the railway stations, including Metro and Bus services, etc.

As part of our efforts to provide seamless travel experience to passengers, we have given utmost importance to intuitive wayfinding and standardized signages at railway stations. These guidelines will serve as a guide to visitors and assist them in making cognitive decisions related to their journey and other needs. These guidelines have been framed to make the wayfinding accessible to everyone, including elderly and divyangjan visitors to the Railway Stations.

I am confident that this document will be of great value to the Railway Officials engaged in redevelopment and maintenance of stations.

A handwritten signature in black ink, appearing to read 'अश्विनी' (Ashwini).

19.4.23

Ashwini Vaishnaw

अनिल कुमार लाहोटी
ANIL KUMAR LAHOTI



75
Azadi Ka
Amrit Mahotsav



अध्यक्ष एवं मुख्य कार्यकारी अधिकारी,
रेलवे बोर्ड
पदेन प्रमुख सचिव, भारत सरकार
रेल मंत्रालय
**CHAIRMAN & CHIEF EXECUTIVE OFFICER,
RAILWAY BOARD
EX OFFICIO PRINCIPAL SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

19th April, 2023

MESSAGE

Gati Shakti Directorate, Railway Board has prepared a comprehensive document on the "**Guidelines on Standard Signages at Stations on Indian Railways, 2023**". This document is a significant milestone in the efforts of Indian Railways to provide a seamless travel experience for the passengers.

A need has been felt to standardize the signages currently in use across all stations. This standardized system aims to improve the passenger experience by providing clear and consistent information graphics, along with an effective wayfinding strategy. Well-designed signages at railway stations shall help in conveying information quickly and unambiguously to the visitors of railway stations. These guidelines have effectively covered the design and positioning aspect of the various types of signage at railway station which play a vital role in assisting passengers to carry out their journey efficiently, comfortably, conveniently, and safely.

These guidelines emphasize the use of simple language, clear fonts, easy-to-read colours, and intuitive pictograms to ensure that anyone can navigate around the station and use its facilities without difficulty. With the release of this document, Indian Railways is set to provide consistent wayfinding across Indian Railway Stations.

I convey my heartfelt congratulations to the teams of Gati Shakti Directorate, Railway Board and RLDA for their hard work in preparing these guidelines.

I look forward to their earnest implementation across Indian Railway Stations.

(Anil Kumar Lahoti)



MESSAGE

The aim of creating the "**Guidelines on Standard Signages at Stations on Indian Railways, 2023**" is to establish a uniform signage system at all Indian Railway Stations. With a diverse range of passengers traveling every day, Indian Railways intends to eliminate inconsistencies and inadequacies in signages and implement a standardized approach to wayfinding.

Effective communication is crucial for ensuring safe and efficient transportation, and clear signage plays a vital role in this process. A uniform signage system will provide consistency and ease of use for commuters and enhance the overall user experience at the stations.

These guidelines intend to provide signage at station for aiding reassurance, security, and orientation to all users, including first-time users, elders, and divyangjans, while entering, navigating, exiting, or transferring. To ensure easy navigation and usage of station facilities, these guidelines prioritize the use of simple language, clear fonts, easy-to-read colors, and intuitive pictograms. The design and positioning aspects of various types of signage has been effectively covered in the document which shall serve as a valuable resource for all stakeholders involved in designing and implementing signage at our stations.

I commend the efforts of Gati Shakti Directorate, along with other directorates of the Railway Board, officials of RLDA and IRICEN, for bringing out these guidelines in a short time.

With the release of these guidelines, Indian Railways aims to provide consistent signages across all its stations, and I eagerly look forward to their implementation.

19.04.23
(Roop Narayan Sunkar)

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General

1. Introduction

Signages act as a guide to visitors of Railway Station premises and assist in making cognitive decisions related to their journey and other needs. A good signage conveys its message swiftly and unambiguously often without need to read the complete contents of a signage. Signages serve as a medium of communication with a wide variety of station users with varied mindset and varied needs. Accelerated way finding helps achieve the ultimate motive to reduce the anxiety of all concerned in transit and help people catch their trains. Signages also play a vital role in safety through orderly evacuation of passengers during emergencies.

Well-designed signages use simple and easily decipherable language, easy to read colours and fonts, intuitive pictograms and convey their message quickly and unambiguously. Signages should ensure that anyone can navigate around the station and use its facilities, minimising the need to ask station staff, coolies, or vendors. These guidelines aim to gradually phase out the wide variety of designs and patterns currently in use across India with broadly similar look and feel. The principles for design and planning of the signages aim to provide consistent wayfinding across Indian Railway Stations.

2. Objective

The Signage Plan for a Railway Station should aspire/achieve the following objectives: -

- To provide a uniform rationale for locating signages, considering how the signage will be read, by whom, from which direction, at which height, and in relation to other elements that exist or will exist within the space so that they serve maximum volume of passengers/general public;
- To provide a basis for aesthetically designed signages well integrated with station architecture;
- To plan and design the signage such that the station is easily accessible even to a first-time visitor;
- To ensure standard signages suitably formatted (font, font size, colour, background, etc.) with specified design/materials;
- To ensure that information on the signage is precise & uniform, accommodating essential information;
- To achieve continuous directional signage, with repeaters at junctions, to lead the user to their destination;
- To restrict redundant signages and avoid visual clutter for better visibility;
- To ensure use of uniform language/legends across India to ease the learning curve for the visitors to Indian Railway premises;
- To ensure that the signages are accessible to the maximum extent possible to the Divyangjan users at Railway stations.

3. Using this document

This document has been divided into four parts.

- **Section 1, Design Principles for Wayfinding and Signages:** This chapter deals with the salient design principles that govern wayfinding strategies at Railway stations. It provides guidance on how to present information in an easy and effective manner such that it is accessible to the first time and frequent visitors as well as elderly and Divyangjan visitors.
- **Section 2, Design Recommendation:** This chapter covers the design recommendation of signages to be provided at Indian Railway stations. The graphics standards covered in this chapter have been designed to address station users' requirements. It covers standard graphics, information layout and hierarchy, fonts style, colour scheme, pictograms, text spacing, placement height and illumination to bring in as much uniformity across the entire Railway system as possible and desirable.
- **Section 3, Standard Types of Signages:** This chapter covers the various standard types of signages categorized based on their shapes. The shape of any signage shall be selected judiciously by the Zonal Railways based on its positioning and orientation with respect to flow of passenger/vehicular movement. The graphical signages and their shapes shown in this section are for guidance purpose only and may not be replicated exactly.
- **Section 4, Technical Specification:** This chapter covers the technical specifications for material and general aid to procurement of signages. The specifications given here are for illustrative purposes and meant to provide a baseline only. Technologies and materials evolve continuously and the actual technical specifications may be different or more detailed based on Good Industry Practices and shall be meticulously framed and duly approved by DRM concerned.
- **Annexure A:** It covers the Do's and Don'ts while designing the wayfinding signage.
- **Annexure B:** It covers the list of standard pictograms to be used across all Indian Railways.
- **Annexure C:** It covers illustrations of signage to be used at Small/Medium size stations with their location and sizes.
- **Annexure D:** It covers the signages used at CSMT station for wayfinding. The reference provided is only for guidance and Railways are required to provide signage board based on station specific requirement.
- **Annexure E:** It covers the technical specification of signages that have been used at CSMT station. These are for reference purpose only. The detailed specifications including material specifications shall be prepared by Zonal Railways as per specific station requirements and Good Industry Practices. Specifications and Schedule of Rates as per Railway Board's letter no. 2022/CE-I/CT/8/CPWDDSR dated 13.10.2022 or latest instructions from Railway Board for preparation of Estimates/Tender Schedules shall be referred to the extent possible.

- **References:** This chapter includes documents for further references including Indian Standard Codes, Design guidelines, National Standard Documents and Guidelines, Books, and websites.

In case of ambiguities or discrepancies within these guidelines, the following shall apply:

- Between Annexure attached in this document and the provisions mentioned in Section 1, 2, 3 & 4, the provisions mentioned in concerned Sections shall prevail;
- Between Section 1 and Section 2, the clause mentioned in Section 1, Design Principles for Wayfinding and Signages shall prevail;
- Between two or more clauses within this document under Section 1, 2, 3 & 4, the provisions of a specific clause relevant to the matter under consideration shall prevail over those in other clauses;
- Between the pictograms specified in Annexure B and any other illustrations, the pictograms mentioned in Annexure B shall prevail; and
- Between the dimension scaled from the Drawing/Graphics and its specific written dimension, the later shall prevail.

This document provides broad guidance for providing aesthetically designed signage with intuitive way finding. It shall be read along with relevant instructions, policy etc. issued by the Railway Board and Statutory bodies from time to time. The guidelines specified in this document are not exhaustive and shall not be limited to this document only. DRMs shall meticulously plan to provide uniform aesthetic signage at the stations as may be necessary for successful implementation of wayfinding.

The Railways are authorized to make necessary alterations as per the specific requirements of individual stations with the approval of Divisional Railway Manager (DRM)/ General Manager (GM). However, while making any alterations, the basic principles and guidance provided in this document shall be broadly followed. Any changes done, suggestions for improvement and challenges being faced while implementing these instructions may be brought to the notice of the Railway Board for incorporation in future editions.

Section - 1

Design Principles for Wayfinding and Signages

1.1 Basis of Design

The following principles shall be followed to create a unified environmental graphics and passenger information system:

1.1.1 Visibility And Readability:

All signs shall convey information to passengers in a clear, concise, and coherent manner. Adherence to the standards of colours, typeface and their use in text and sign backgrounds is important to retain a desired level of visibility and readability. Background colour of various signage located at stations play a vital role in guiding the passengers. Text colour as well as background colour of signage have been standardised according to the information it relates to, making it easy for the passenger to identify which boards she/he should refer to while travelling as per their need.

Signs should be well, and evenly, lit with uniform lighting over the surface of the sign of between 100 and 300 lux. Minimum acceptable level of lighting for directional signage, orientation maps and information text panel shall be 200 lux.

1.1.2 Information Hierarchy:

Messages on signs should be comprehensible, logical, and consistent in language. For conveying information swiftly, it is desirable that the signages use a minimum amount of text, supported by intelligent pictograms and arrows as appropriate. This is important to minimise confusion at stations, including changes in transportation modes, so that passengers understand the transport network and the various options available at specific points of their journey. For ease of communication, too many messages on signs should be avoided. Information should follow a system hierarchy based on direction and the importance of information to passengers at each stage of their journey.

The hierarchy of information for passengers should start with the station user's most critical information at the top, working down to their least essential needs. The high importance of safety, directional and mandatory signage should be reflected visually in the signage boards. Essentially, train related information, such as, platform number, ticket booking counter, enquiry counter, etc details should be listed at the top, followed by onward journey information, internal circulation, amenities, and facilities, working down to less essential information such as reservation, commercial services, retiring room, etc. at the bottom. Way out Information shall always be positioned at the bottom of an information group so that it can be read on priority from bottom.

Wayfinding signage should always take visual priority over other signs, and its view should always remain unobstructed from key decision points.

1.1.3 Universal Accessibility:

- Contrasting colours should be used to differentiate the pictogram from the background. The commonly employed colours are white for the pictogram and blue for the background.
- The wheelchair figure should always be seen from drawn facing right.
- A tactile map or model is a useful way of providing information to visually impaired people and people with hearing impairments who wish to navigate around a building.
- Braille signage may also be provided along with all other signages. Audio/ visual Braille map is another important thing that can be provided at the main premises from where onwards, it shall guide the user to its intended location/facility.

1.2 Classification of Signages at Railway Stations

The signages can be classified into different types on different basis:

a) Based on application:

- **Identification signage** - to indicate the location of a specific destination/facility
- **Directional signage** - to depict direction towards platforms, utilities, facilities, etc. (can be either standalone or in series along the path)
- **Information signage** - to depict information on various utilities/facilities and working of the system and its management
- **Caution/Warning/Prohibitory signage** - to caution/warn users regarding Do's and Don'ts related to personal safety, cleanliness, etc.
- **Safety/Security signage** - to guide visitors regarding safety/security related instructions.

b) Based on the location:

- **External** – station approach and its external environs;
- **Station Building** – passenger movement areas inside station except platforms, but including concourse, internal circulation, amenities and waiting areas; and
- **Platform** – covering all platforms and connections between them such as corridors, footbridges, and underpasses.

c) Based on shape and illumination:

I. Flat Indoor Signages (Illuminated and Non-illuminated)

- i. Non-illuminated Double Side (Back-to-Back) Signage (F1)
- ii. Non-Illuminated Single Side Signage (F2)
- iii. Illuminated Double Side (Back-to-Back) Signage (F3)
- iv. Illuminated Single Side Signage (F4)

- II. **Flat Outdoor Signages (Non-illuminated)**
 - i. Station Name Board (Special)
 - ii. Circulating area double sided signage (C1)
 - iii. Circulating area Single sided signage (C2)

- III. **Elliptical Signages (Illuminated or Externally Illuminated)**
 - i. Double sided Horizontal Elliptical (E1)
 - ii. Single sided Horizontal Elliptical (E2)
 - iii. Double sided Horizontal Semi-Elliptical (E3)
 - iv. Single sided Vertical Semi-Elliptical (E4)
 - v. Double sided Vertical Semi-Elliptical (E5)
 - vi. Four-sided pole mounted Elliptical (E6)

Refer to Section 3 for typical examples.

1.3 Positioning of Signages

- i. Passengers navigating in an environment typically follow a series of directional signs, before reaching their destination. Emphasis should be laid on proper positioning of signage. As far as possible, signs should be placed perpendicular to the main paths of movement, so that they can be seen by flows of passengers while moving.
- ii. Passenger Circulation Patterns should be studied including their primary origins and destination and signage should be placed at appropriate locations such as benches, cafes, booking counters, restrooms, etc to benefit the maximum number of people.
- iii. It is essential that signs are positioned where people need them most. These locations are generally **decision points**, where information on a sign influences directional choice. Decision point signs typically provide directional information to way out routes, intermodal transport connections, platforms, and key facilities etc.
- iv. Long pedestrian routes, or those with a change of direction should have multiple directional signs to provide reassurance to the traveller. Directional signage should be repeated at every junction point till the passenger reaches the specific utility/service/exit etc.
- v. In fast moving spaces, it is important that people do not stop in between and create bottlenecks in circulation spaces. These locations require fast, immediate directional information that can be seen without stopping, for example over the heads of crowds with text large enough to be read from a distance. At other points, visitors may seek more in-depth map/directory information which requires more time, and therefore the location should be suitable for passengers to stop without obstructing passenger flows.
- vi. Consolidated directional signage with pictogram should be provided at all junctions and vantage points to serve as directory to various utilities, services, exit routes, platforms etc. The line of sight of exit routes must be always clearly visible. Care should be taken

that the placement of signage should not be too close to each other and hinder the visibility from distance. Optimal number of useful signage should be displayed.

- vii. To make the signage accessible to persons using Wheelchairs, it is recommended to provide signage on large level surfaces like the Concourse area at both high and low level to accommodate their needs. The following diagram depicts comfortable viewing angles, distances, and minimum viewing for all groups of users.

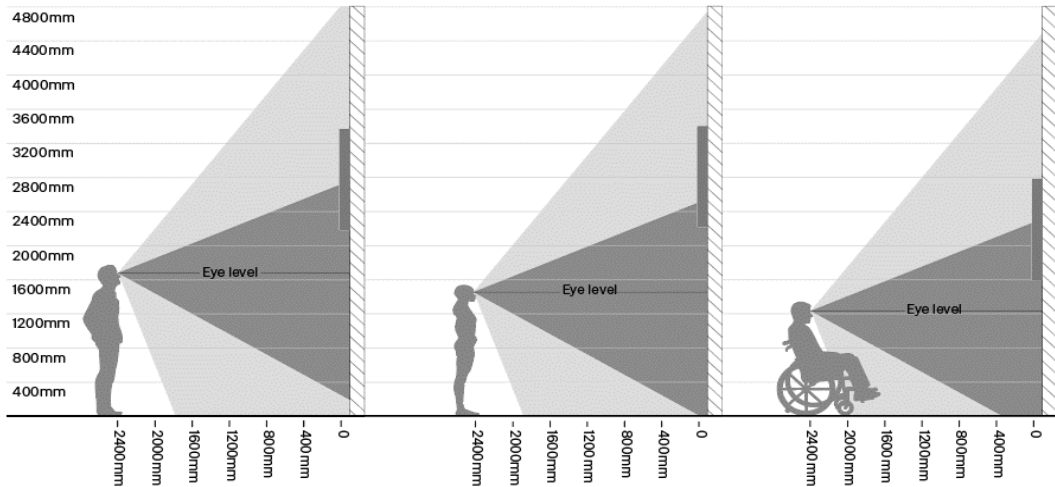


Figure 1: Vertical Viewing angle for different users

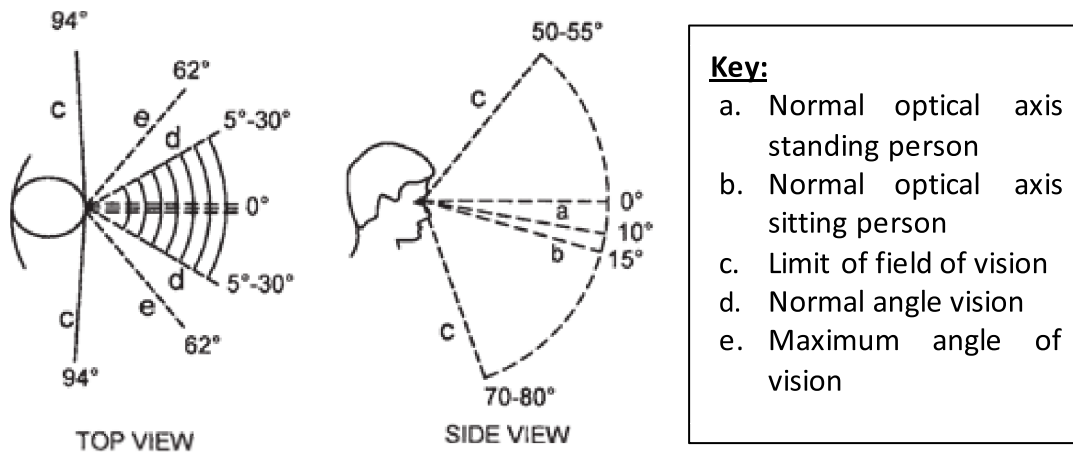


Figure 2: Field of vision and viewing angles

- viii. Signages of all facilities pertaining to Divyangjan including Wheelchairs, Divyangjan Toilets, Ramps, low height ticket/'Sahyog' counter, etc in compliance to "Guidelines on Accessibility of Indian Railway Stations and facilities at stations for differently abled persons (Divyangjan) and passengers with reduced mobility, Ministry of Railways" to be provided and displayed prominently for clear visibility from a distance.

1.4 General principles for design of signages

1.4.1 Materials

The material for signages should be non- reflective, preferably matt finish to reduce the stray light reflectance and increase the visibility. The surface should be processed to prevent glare. Backlighting is preferred. The material of all signage boards shall be chosen to reduce wear and tear and possible damage by vandalism and at the same time easy to maintain. Some suggested materials for signage include Aluminium Composite Panel (ACP), acrylic, Concrete, Steel, wood etc.

The installation/erection of signages should be executed in accordance with good industry practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the Works. All codes and standards referred to in these specifications shall be the latest thereof, unless otherwise stated. The design of various components, assemblies and subassemblies should be done so that it facilitates easy field assembly and dismantling.

“Good Industry Practice” means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability, and prudence in accordance with Applicable Statutory Laws and Applicable Standards in a reliable, safe, economical, and efficient manner.

1.4.2 Typography, Colours and Pictograms

The typography shall be so selected that it provides context more easily understandable and can be read from adequate distance. The spacing of letterforms and vertical spacing between lines of text also have an impact on legibility of signages. For people with vision impairments, letters and lines of text can seem blurred when spaced too close together. A balance shall be sought between spacing text to be universally accessible.

Some people may have difficulty distinguishing between different colours, if they appear next to each other. For this reason, a minimum luminance contrast of 30% is required to easily distinguish text on a background of different colour. However, a Visual Contrast value of 70 % is recommended. Visual Contrast value is the difference in Light Reflectance Value (LRV) between the Background Colour and Character Colour. LRV is measured on a scale of 0 to 100 where 0 equals black where total light is absorbed and 100 equals white where total light is reflected. If A1 is LRV of the lighter area colour and A2 is the LRV of the darker area colour, then Visual contrast value is calculated as $[(A1-A2)/A1] \times 100 \%$.

The pictograms when used along with typographical information communicate information to its viewers of many different languages at once. Extensive use of universally accessible pictograms is recommended.

1.4.3 Arrows

Directional arrows shall be designed to be highly visible and recognizable from a distance. Their correct application should be done for clear identification of directional signs within a busy station environment ensuring messages on signs are quickly assimilated and understood.

Use of Arrows on sign should comply with the following principle:


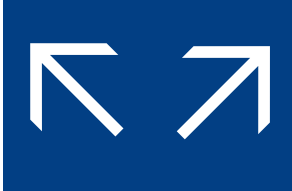
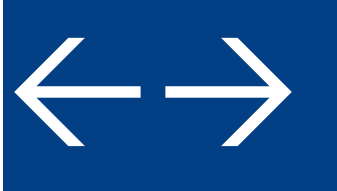
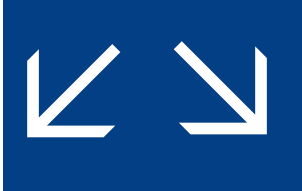

				
<p><u>Up/Ahead</u> To be used for representing straight ahead direction or level change</p>	<p><u>Diagonal or Up</u> To be used for directing across a diagonal flat area or level change (up) and to be accompanied by the text “via lift”, “via escalators” or “via stairs” to indicate the way of getting to the upper level</p>	<p><u>Left/Right</u> For standard left/right directions.</p>	<p><u>Down</u> To be used for representing a change in level and to be accompanied by the text via lift”, “via escalators” or “via stairs” to indicate the way of getting to the lower level</p>	<p><u>Down via lift</u> Only to represent level change (down via lift)</p>

Figure 3: Different types of Arrows

45 Degree/ oblique arrows should be used very carefully only at following instances:

- a. Showing a change in level, i.e., movement above or below at the staircase
- b. Showing a prominent location/ third direction in the same sign panel which is distinctly accessed between the straight ahead and right / left directions.
- c. In open areas where a person can walk in an oblique direction between the straight and left/right
- d. These should not be used in narrow corridors

1.4.4 Language for Signages:

In Hindi speaking States i.e., States located in Region A (these States have Hindi as their Official Language), the information on signage shall be in Hindi and English. The sign boards shall first have Hindi written/engraved or printed/painted/engraved. In addition to Hindi and English, other language shall be used as are authorized by the State Governments for use for official purposes considering the convenience of the general public living in these states. In non – Hindi Speaking States i.e., States located in Regions B and C, the information on signage boards shall be in order of Regional Language, Hindi, and English. Reference Department of Official Language (Ministry of Home Affairs for Official purposes of the Union) OM No. 1/14013/07/2010-OL (Policy-1) dt 07.04.2011.

1.5 Interaction of signages with commercial boards:

Commercial boards/hoardings should be placed such that they do not obstruct the visibility of the wayfinding signage. In general, the wayfinding signages shall not be combined with commercial information. Further, the colours chosen for commercial boards shall not interfere with the signages. On End Platforms, commercial boards should preferably be placed along the walls and clamped on the roof structure parallel to the track. On Island Platform, it shall be preferably be placed parallel to the track duly clamping on the roof structure.

There shall be a mechanism in place to vet the content, the colour scheme and placement of the commercial boards so that these do not interfere with the signage system.

1.6 Interaction of signages with station architecture:

It is important that the signages gel with the station architecture. Normally, it is expected that the architects and interior designers working on stations would see the signages and provide the colours and other features such that there is an overall visual harmony and the objectives of providing signages are enhanced by better contrast and lack of clutter around the signages. However, in existing stations with strong architectural features, the design of signages has to be modified to achieve the same objectives.

Special care may be taken to design Station Name Boards over station buildings matching with the architectural vocabulary while meeting the information and visibility requirement.

Section 2

Design Recommendations

2.1 Information Hierarchy and Grouping of Information

2.1.1 Hierarchy of Information:

Hierarchy of information in signages shall follow:

1. Essential Journey Information: Train Travel and Platforms
2. Directional Information & Mandatory information: Transport Interchange, Journey inside station
3. Amenities, Facilities and Other customer information: Toilet, Water facilities, Waiting Hall, etc.
4. Commercial Facilities: Restaurants, Retails, etc.
5. Way out Information shall always be positioned at the bottom of an information group.

Any other information is then shown in order of importance specific to individual stations.

Refer Annexure A for typical Do's and Don'ts.

2.1.2 Grouping of Information:

When more information needs to be displayed in a single display board, grouping of information is desirable for better readability. The wayfinding information is grouped by directions with 5 information per group. Within each group, the information is organised by importance. Grouped information is to be shown by a single large directional arrow duly separating the group information with dotted lines.

These can be used in case of pylon sign boards placed in the concourse area. Size of pylon sign boards shall be designed as per the concourse area and designed viewing distance. Larger Pylon size shall be used when station design allows for information to be viewed from 12 to 15 m metres while, smaller size pylon shall be used when designed viewing distance is 8 to 10 metres.

2.2 Universal Accessibility

Notwithstanding anything contained herein these guidelines, the signages shall be fully compliant with Divyangjan guidelines issued by Railway Board from time to time. However, while providing signage boards for Divyangjan, care shall be taken in the following regard:

- For completely accessible Station buildings, an explanatory sign shall be displayed at the entry/exit of the station.
- Directional signs bearing the symbol of access must be displayed at all other non-accessible entrances to direct persons with disabilities to the accessible entrance.
- Wherever the location of the accessible parking lots is not obvious or is distant from the approach viewpoints, directional signs should be placed along the route leading to the accessible parking lots. Accessible parking bays shall be clearly demarcated with floor signs along with vertical sign posting. The international symbol of accessibility (wheelchair sign) should be displayed at approaches and entrances to car parks to indicate the provision of accessible parking for Persons with Disabilities within the vicinity. A square with dimensions of at least 1000 mm but not exceeding 1500 mm in length located at the centre of the lot; and the colour of the symbol should be white on a blue background.
- If the slope of the existing ramp is meeting the accessibility requirement, a sign indicating accessible ramp should be mentioned, else caution sign indicator boards need to be provided at appropriate locations.
- A tactile map shall be provided to the intended user at the Information counter which shall be helpful in providing information to visually impaired people and people with hearing impairments who wish to navigate around a building.
- Braille signage may also be provided along with all other signages at the stations. Audio/visual Braille map shall also be provided at the station main concourse area at Information/Service counter and Help booths duly integrated with the tactile flooring as illustrated in the Guidelines for Divyangjan. Efforts shall be made to get frontline service staff trained in sign language in a phased manner.

2.3 Fonts for Signages

- The English text for signage shall be Helvetica Bold font for all non-illuminated signs and illuminated signs.
- A complementary font Utsaah Bold shall be used for all Hindi text. The same can be downloaded from official Lok Sabha Website.
- For regional language, the fonts shall be suitably selected with the approval of DRM concerned. Reference can be made from major Airport of the respective state or as used by State Government. SakalBharati (OTF) Font as available at tdil-dc.in may also be explored wherever required.
- Cap height (i.e., letter height of English Capital letter in sign) determines the visibility distance of the sign.

- Typical character height for fonts in small/medium size station for different sign categories are:
 - **Concourse Pylon** : 50mm
 - **Internal Wayfinding (Hanging)** : 100mm
 - **Internal Wayfinding (Wall mounted)** : 75mm
 - **External wayfinding** : 100mm
 - **Railway offices** (other than passenger amenities) : 50mm
 - Necessary repeater boards shall be provided in linear spaces
- However, as per the station specific requirement for placement of signages and its visibility distance, the cap height may be suitably selected. Following table gives the normal and maximum viewing distance for various cap heights.

Table 1: Cap Height with respect to viewing distance

Cap Height (In mm)	Ideal Readability distance (In m)	Maximum Readability distance (In m)
50	6	15
75	9	30
100	12	45
150	18	75
200	24	100
250	30	125
400	48	180
600	72	270
750	90	350
1000	120	450

- Font size must be suitably selected to achieve the required cap height depending upon the expected viewing distance of particular signage.
- Where bilingual signage is used, font size of both the languages shall be the same and as mentioned above. Where trilingual signage is to be used, regional language will be the main language and its font size will be as mentioned above and font size of other two languages shall be approximately 50% to 60% of the size of regional language.

2.4 Colour Scheme

Following colours shall be used on signages:

Table 2: Colours to be followed

Types of Signage	Description of colour for background and signage matter
Identification & Directional related to train boarding (e.g., PF no., FOB no., entry etc.), buildings/facilities integrated like BUS, Metro, High Speed with station# and Utilities (e.g., Waiting room, VIP lounge, Clock Room, Parcel etc.)	Dark Blue Background with White Text/Arrow/Logo.
Way Out	Dark Blue Background with Yellow Text
Emergency Exit	Green Background with White Text/ Arrow/ Logo. The green safety colour should cover at least 50% of the surface of the sign
Caution/Warning/Prohibited Items	Yellow Background with Black Text
Safety/Security	Red Background with White Text along with Symbols.
Room name board related to passenger facility/ utility/amenities and Railway Offices	Orange background with white text.

#: If a given Railway Station has segregated platforms catering to different train types like Local/Mail Express or BG/MG etc. then different colour schemes can be used for wayfinding of different areas for ease of passengers. Floro-graphic signages can also be used to separate and distinguish different train types with Marking lamination (anti-skid lamination) after approval of DRM.

Following is the colour palette for the signage colours recommended. The shades used shall be a close match to the below mentioned CMYK (Cyan, Magenta, Yellow, and Key (Black)) scale.

Identification & Direction Information	Emergency Exit
CMYK: 100-75-2-18	CMYK: 100-0-91-27
Safety /Security	Caution/ Warning
CMYK: 0-100-63-12	CMYK: 0-9-100-0
Room name board related to passenger facility/ utility/ amenities and Railway offices	Exit
CMYK: 0-60-80-0	CMYK: 100-75-2-18 Text CMYK 0-0-100-0

Figure 4: Colour Palette for the signage colours to be followed

Periodic checks should be made to ensure that the colours of the signs continue to be a close match to the standard shades mentioned below.

2.5 Information Layout

- Positioning of elements in a line must always follow the same sequence:
 1. Arrow
 2. Symbol
 3. Legend
 4. Secondary Text



Figure 5: Sequence of Text Layout

- The sequence applies in both cases i.e., when ranged left-to-right or right-to-left.

Section -2: Design Recommendations

Sequence for vertical boards shall also follow the same informational hierarchy from top to down.

- The character height of platform number mentioned shall be kept larger than the character height of legend text to give more visibility and emphasis to platform number on sign board, being the most important train information from passenger point of view. (Refer para 2.7 for illustration)
- Secondary text must always be positioned following the main legend. It must not be used without the main legend. Secondary text must always be ranged to the same direction as other elements in the same line. The font size of Secondary text shall be 75% of the Primary Text.



Figure 6: Secondary text in Signage Board

- To maintain consistency, all signs are split into two texts 'zones'; (range left / range right). Text leading straight ahead should also be aligned to left. Text ranged to the left must appear at the top of the sign while text ranged to the right appears at the bottom. Refer Annexure A for typical Do's and Don'ts.



Figure 7: Left and Right text zones in Signage boards

2.6 Pictograms

Pictograms should be used to the maximum extent possible. Pictograms are useful because they are a form of shorthand for explaining directional or location messages, designed to be suitable for local as well as an international audience. Stand-alone pictograms are used to identify passenger facilities such as information points and toilets. See Annexure B for the list of standard icons. If a representative icon is not available in the list, then the same shall be approved by the DRM/PHOD concerned.

2.7 Text Spacing and Pictogram Sizes

A standard alphabet spacing is to be ensured. The ratio of sizing of various elements in the sign board vis-à-vis the Cap height (denoted by x) is specified in the following graphic. This ratio is to be followed for all the sign boards. As mentioned in Para 2.3, the cap height (x) may be finalised based upon the requirement of viewing distance.

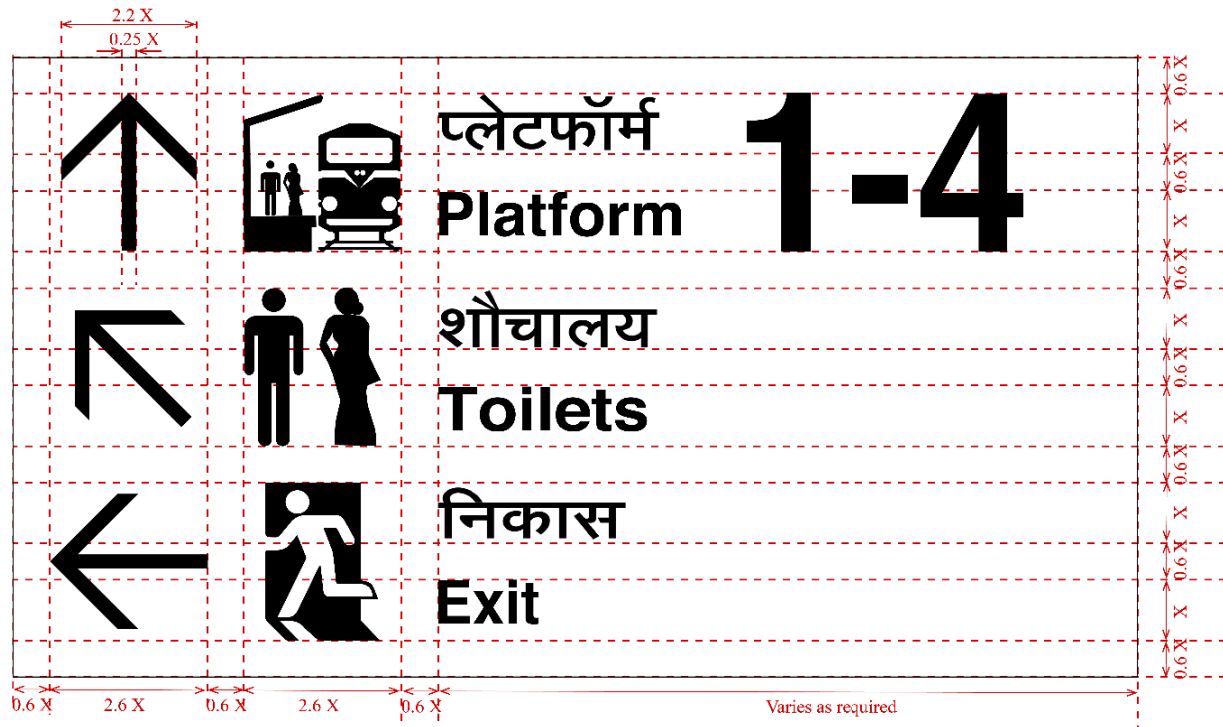


Figure 8: Proportions of Arrow, Pictograms, Text, and Spacing in Signage Boards

2.8 Signages at Complex Stations

Each large station has its own specific layout and requirements and will need a detailed analysis on a case-to-case basis for working out the signage requirements for that particular station. However, while deciding the signage for large station, following may be seen:

- The font, font size, arrows, line spacing, text layout, information hierarchy, pictograms mentioned in this document and other guidelines mentioned above have to be followed.

- The colour coding mentioned in this document may be followed, however, for large stations dealing with different type of trains or traffic segment like MG/BG, Local/Long distance, EMU/Mail Express etc., different colour schemes shall be used for wayfinding of different zones of train type/traffic segment for ease of passengers. In this regard, signages used at CSMT stations (placed at Annexure-D) may be referred for guidance only and a suitable colour-coding scheme shall be judiciously finalised by the DRM taking into consideration the architectural theme of the station. The colour scheme so selected shall be based on recommended Visual Contrast Value of 70% between the background colour and character colour. Accordingly, all the identification and direction board, which is usually white text in Dark blue Background may be changed with suitably selected colour pattern for that Category of Train or Traffic segment.
- While selecting the colour scheme, care shall be taken for People with partial loss of vision who find it difficult to navigate in and around the built environment, especially in unfamiliar settings. While excessive contrast can create problems of glare, inadequate contrast can make it difficult for persons with low vision to discern objects or details in the environment.
- Further, if above segregation is not permanent but dynamic (i.e., changes from time to time or day to day etc.) then true colour LED boards may be used and the colour scheme should be altered dynamically depending upon the requirement.
- The positioning of the signage and placement height of the signage may be decided as per the local condition requirements.
- The front gate elevation board shall distinguishably guide towards the various train type/traffic segment for ease of passengers. Similar directional wayfinding boards shall be used in concourse area to align and separate the users. The ratio of sizing of various elements in the sign board vis-à-vis the Cap height (denoted by x) is specified in the following graphic. colour scheme is only representative. Final colour scheme shall be approved by DRM.



Figure 9: Colour scheme for zoning of different train type/traffic segment at complex station

2.9 Placement Height

- Wall mounted signs are designed for placing at a height clearance 2.10m from the finished floor level.
- Platform Hanging signs are designed for placing at a height clearance 2.5m from the finished floor level.
- FOB hanging signs may be decided as per the height of FOB from station to station, as far as possible height clearance 2.5m from the finished floor level may be achieved.

- External signs, where vehicle entrances are required, are designed for placing at a height clearance 4.0m from the finished floor level. Other pedestrian signs may be placed at 2.5m from bottom of signage to finished floor level.
- When free-standing signage are erected in a level area, a suggested wheelchair-safe waiting zone of 1500mm should be space-proofed, to facilitate a comfortable and safe space without impacting on pedestrian flows.
- Braille and tactile signage should be placed at a height between 900 mm to 1500 mm (ideal location at 1050 mm) above the finished floor level.
- The signage may be placed at 1.2m - 1.6m from bottom of signage to finished floor level so that these boards are visible to persons occupying wheelchairs.

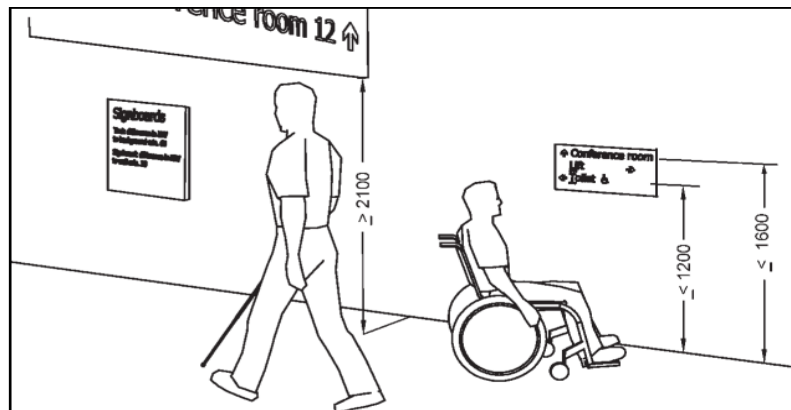


Figure 10: Placement height of signage boards related to Divyangjan

- Concourse Hanging signs are designed for placing at a height clearance 3.3m from the finished floor level duly considering the viewing angle. On step-free routes, it is advisable to provide signage at both a high and low level to accommodate the needs of all users so that they are comfortable for reading without strain.
- Maps and information panels at station entrances, along roads and corridors should be placed at a height between 0.90 m and 1.80 m

2.10 Emergency Exit Plan

The emergency exit plan shall be prepared for all different covered locations in the stations (e.g., tourist office), as per local layout and strategically placed for general awareness of the users and during an emergency. This plan shall show the following important information:

- Location of the plan (You are here)
- Two nearest escape routes from the location of the map
- Location of fire equipment
- Exit staircases highlighted in yellow
- Safety instructions in case of emergency

All fire safety and fire evacuation signs at Check Fire are to be **photoluminescent** – a quality standard set to ensure fire safety signs are still visible even if a fire were to break out and electrical lights went out. All Emergency lightings shall be conforming to IS 9583: 1981: Specifications for Emergency Lighting Units. The signage boards of Emergency exit plan shall be as per IS 9457: 2005 as depicted below:

Combination Sign with Directional Arrows

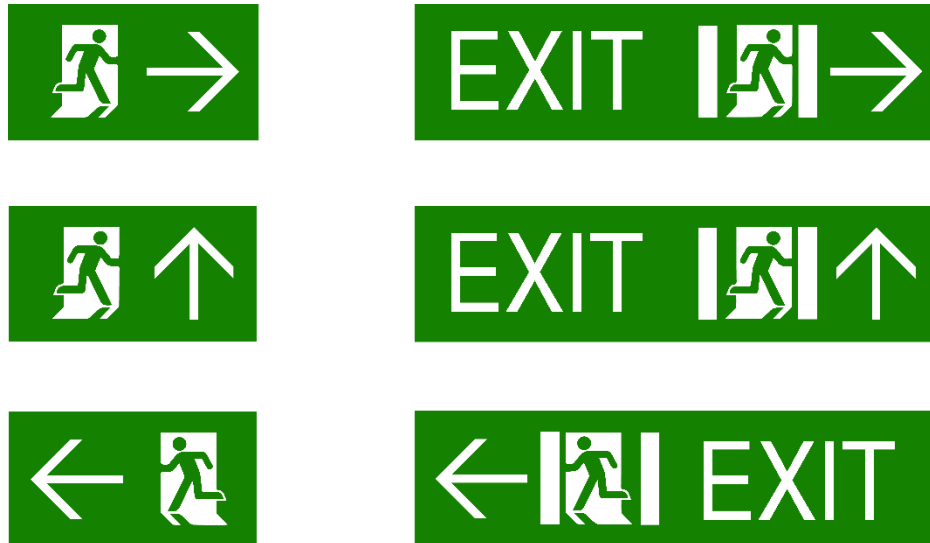


Figure 11: Examples of Emergency exit signage

2.11 Orientation Map:

Orientation maps give the aerial overview of the Station in 3 D Isometric view, with “**You are here**” shown indicating the relative position of all utilities with respect to the location of these orientation maps. It shall help passengers to build a mental model of the entire scape. Using these orientation maps, the passenger coming in at any point shall be able to orient themselves easily to reach their desired destination and access relative spatial information regarding important utilities within the station, such as ramps, escalators, elevators, cafeterias, station master offices, FOBs, exit/entry gates, and washrooms, with respect to the current location of the intended user. Additionally, the maps shall also show the relative direction to the nearest transit stops for buses or metros outside the station, enabling passengers to navigate to their desired mode of transport comfortably. To ensure consistency and clarity, the location of utilities on the map should be depicted using standard pictogram outlined in Annexure B. The orientation map shall also preferably have braille dot embossing placed at accessible height for Divyangjan users.

To improve the navigation experience for passengers, Orientation Map may be installed at stations whose location and quantum of boards shall be as per station specific requirement. However, when planning for locations of Orientation Maps, the pedestrian traffic movements and other environmental factors shall be considered to increase the effectiveness of such signage boards.

2.12 Digital Signages

Digital signages are increasingly being used for station wayfinding and should be gradually integrated with other wayfinding elements. The benefits of using digital wayfinding include the flexibility to reconfigure wayfinding messaging, the seamless combination of customer information with wayfinding and the ease of connecting wayfinding information. As the provision of digital information in spaces becomes more prevalent, screen usability factors should be considered. Digital screens, particularly touch screens, may be inaccessible to people with vision impairments, wheelchair users and people of short stature where the touch area is out of their reach. New technologies allow the usable portion of a touchscreen to be interactively lowered to suit the height of the user. This allows people of different heights and in wheelchairs to customise the working area to their height, if configured properly. These digital touchpoints can also include audio output and the ability to increase font size and screen contrast.

It is imperative that the installation of digital signage not be viewed as just hanging a screen on a wall. The display must be integrated into the room/platform/relevant area design if it is to be installed in a new space, or that careful thought be given to how it should be integrated into an existing space. When planning for locations of screens, the pedestrian traffic movements and other environmental factors shall be considered to increase the effectiveness of digital signage. For example, a location where sunlight comes through the window & thus impacting the visibility of screen's content should be avoided.

2.13 Train And Coach Indication Boards

Different types of train Indication Boards are used at the Railway stations for the convenience of the passengers. The system consists of a central server and various boards that get their display data from the central server. The system is IP based and common station networking arrangement is used for interconnecting its various components. The different types of Boards are as under: -

- a) Multiline Display Board (MLDB)
 - Mono colour MLDB
 - True colour MLDB (Indoor video display (IVD) & Outdoor video display (OVD))
- b) Platform Display (PFD) Board
- c) At-a-glance display (AGD) Board
- d) Coach Guidance Display (CGD) Board
- e) Display Monitor/ LED TV (industrial grade)

These display Boards shall be provided as per latest version of RDSO specification No. RDSO/SPN/TC/108/2019. The requirement of different types of boards shall be as per latest instructions issued from Railway Board from time to time.

The system block diagram is shown in below figure.

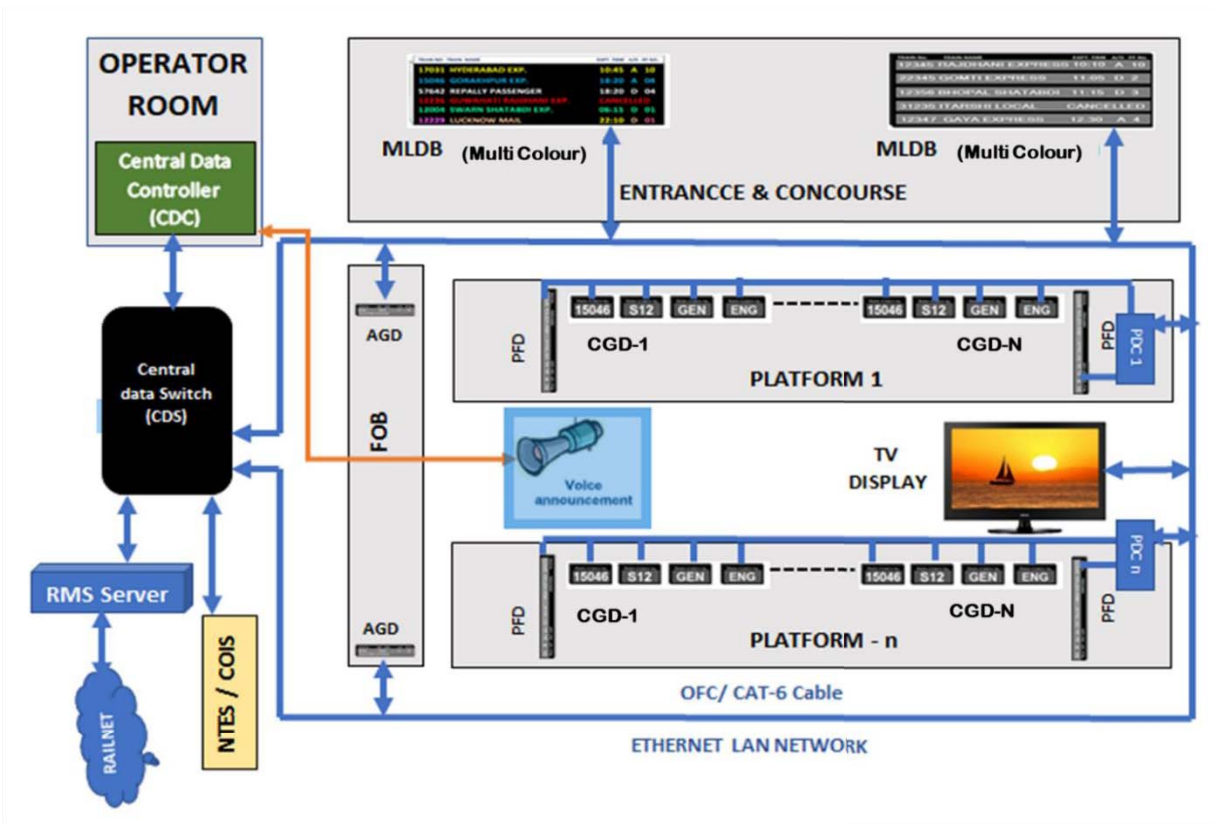


Figure 12: System Block Diagram

2.13.1 Multiline Display Board (MLDB)

Multiline Display Boards are used to display train Information in mono colour i.e., Train number, Name, time of arrival/departure and platform number. It shows information of up trains/ down trains or both. The multiline display boards are generally placed at main entrance/ concourse of the station.

TRAIN No.	TRAIN NAME	EXPT. TIME	A/D	PF No.
12345	RAJDHANI EXPRESS	10:10	A	10
22345	GOMTI EXPRESS	11:05	D	2
12356	BHOPAL SHATABDI	11:15	D	3
31235	ITARSHI LOCAL	CANCELLED		
12347	GAYA EXPRESS	12:30	A	4

Figure 13: Multiline Display Board (MLDB)

2.13.2 True Colour Indoor/Outdoor Video Display Board

True colour Indoor and Outdoor Video Display are used to display train information in multi-colour, commercials, entertainment programs and other information to passengers.

“Train number, Train name, Arrival or Departure status, Time and Platform Number” can be displayed in different colours for the passengers to easily read and differentiate. Trains having certain special status can be displayed in different colours to quickly capture the attention of the passengers. Like cancelled, diverted, platform changed etc.



TRAIN NO.	TRAIN NAME	EXPT. TIME	A/D	PF NO.
17031	HYDERABAD EXP.	10:45	A	10
15046	GORAKHPUR EXP.	18:20	A	04
57642	REPALLY PASSENGER	18:20	D	04
12236	GUWAHATI RAJDHANI EXP.	CANCELLED		
12004	SWARN SHATABDI EXP.	06:15	D	01
12229	LUCKNOW MAIL	22:10	D	01

Figure 14: True Colour Indoor/Outdoor Video Display Board

2.13.3 Platform Display Board (PFD)

Platform Display Board is used to display the information of the train scheduled for arrival/departure from that platform i.e., Train number, Name, time of arrival/ departure in mono colour. The Platform display boards are generally placed at suitable places on platforms/ foot-over bridges.



TRAIN No.	TRAIN NAME	EXPT. TIME	A/D	PF No.
12345	RAJDHANI EXPRESS	10:10	A	10

Figure 15: Platform Display Board (PFD)

2.13.4 At-a-Glance Display (AGD) Board

At-A-Glance Display Board is used for displaying information of the train arriving/ departing from that platform along with coach composition in mono colour. Train information and coach positions are displayed alternatively. These are generally provided at foot-over bridges.



Figure 16: At- a- Glance Display (AGD) Board

2.13.5 Coach Guidance Display (CGD) Board

Coach Guidance Display Board is used to indicate position of coach No. scheduled for arrival/ departure from that platform for guidance of passengers in mono colour.



Figure 17: Coach Guidance Display (CGD) Board

2.13.6 Display Monitor/LED TV

Display Monitor/ LED TV (Industrial grade capable of working 24x7) is used to display train information similar to that being displayed on Multiline Display Board. Display monitor are generally provided in the enquiry offices, waiting rooms or at any suitable Indoor application only.

23-May-20		BARDDHAMAN		18:03:04	
TRAIN NO	TRAIN NAME	A/D	TIME	PF NO	
37843	बर्द्धमान लोकल			अनिश्चित देरी	
37848	हावड़ा लोकल	D	00:00	2	
12341	अग्निविना एक्सप्रेस	A	19:24	3	
53045	रामपुर हाट सवारी गाडी	A	18:21	4	
12348	हावड़ा एक्सप्रेस	A	18:29	5	
53047	रामपुर हाट सवारी गाडी			रद्द की गई है	
37850	हावड़ा लोकल			परिवर्तीत समय	
11106	प्रथम स्वतंत्रता संग्राम एक्स			परिवर्तीत मार्ग	
Welcome To The Indian Railway Station ,We Wish You A Happy and Safe Journey ,भारत					

23-May-20		BARDDHAMAN		18:15:42	
TRAIN NO	TRAIN NAME	A/D	TIME	PF NO	
37843	BARDDHAMAN LOCAL			Indf. Late	
12341	AGNIVEENA EXPRESS	A	19:24	1	
53045	RAMPUR HAT PASSENGER	A	18:21	4	
53047	RAMPUR HAT PASSENGER			Cancelled	
37850	HOWRAH LOCAL			Rescheduled	
11106	P S SANGRAM EXP.			Diverted	
12341 - AGNIVEENA EXPRESS					
ENG	EOG	GEN	GEN	GEN	GEN
D2	D3	GEN	GEN	EOG	
Welcome To The Indian Railway Station ,We Wish You A Happy and Safe Journey ,भारत					

Figure 18: Display Monitor/LED TV

2.13.7 NTES Integration

The central server can also extract information from NTES of Railways and should be integrated with the same at all the stations for effective information dissemination for passengers.

2.13.8 CAP Integration

NDMA (National Disaster Management Authority) has implemented Common Alerting Protocol (CAP), also called Sachet for geo targeted dissemination of disaster alerts through various media. The display Boards to be provided at stations should be integrated with CAP/Sachet (in near future) so that geo targeted alerts can be delivered to passenger at stations through these display systems.

2.14 Illumination

Signage shall preferably be internally illuminated when provided in Station Building and Platform areas. Wherever, non-illuminated boards are provided, sufficient illumination shall be ensured with the help of external lighting.

Signage shall be illuminated wherever required from back using Single/Multiple LED Modules each with IP 65 protection of white colour and rating of appropriate watts. Modules should be uniformly placed in a manner that at least one LED Module every 12 — 16 sq. inch of surface required illumination. Each signage should have an individual power supply adaptor for illumination of all LED installed in signage. The power supply adaptor should be placed inside signage and power supply adaptor should be connected using a plugin type connector connected to mains supply. LED to be used with five-year replacement warranty and specifications of LED module and Driver should be as per table below:

2.14.1 Module:

Table 3: LED Module Technical Specifications

Parameter	Module
Module Wattage(W)	≥1 W
Colour Temp (K)	6500K
LED module make	OSRAM/GE CURRENT/LUCO LED/SLOAN
Chip	OSRAM/CREE/NICHIA/LUMILED/SAMSUNG
Module Lumen/Watt	≥150 lm/W
IP Rating	IP66
Beam Angle	≥160
SDCM (colour consistency, binning)	=/< 3.0
CRI	>80
Burning Hrs	50K @Tc Max (L70 B50)
LM79/ERP Report (Energy Related Product)	Yes
LM80 Certificate	YES
BIS Certificate	IS 10322 (Part5/Sec7)- IEC 60598-2-20
CE/RoHS	Yes
Operating Voltage	24V
Operating Temp	-25 to +70 Degree Celsius

2.14.2 LED Driver Specification

Table 4: LED Driver Technical Specifications

Parameter	Value
Power Factor	0.95
Input Voltage Range	180V - 270V
THD	<5%
IP Rating	IP67
Line to Earth Surge Protection	6 KV
Line to Neutral Surge Protection	4KV
Efficiency	90%
Expected Lifetime	50K Hrs
CE/ENEC/CB	Yes
BIS Certificate	IS15885
Protections	Yes

- To promote energy efficiency, the lux levels of the illuminated signage boards except emergency signages should be reduced to 50% in selected time slots when the ambient light is still available, or when the passengers/users are below 20% of the average peak hour traffic at the station. Use of Technology to remotely access and control shall be promoted.

2.15 Other Design Considerations

- Name of the station shall be shown in full, as in the Working Time Table issued by Railways.
- The Indian Railway logo shall be following the guidelines issued by Indian Railways from time to time. It can be downloaded from the weblink: (<https://IndianRailways.gov.in/Railwayboard/prdirectorat/uploads/pdf/IR%20logos.pdf>).
- Use of abbreviations should be kept to the minimum and only in places where due to space constraints the text has to be reduced. Further abbreviations used should be easily understandable. Some acceptable abbreviations are: Jn. for Junction, AC for Air Conditioned, PRS for Passenger Reservation System, RMS for Rail Mail Service, ROB for Road over bridge, FOB for Foot Over Bridge, SM for Station Master, TTE for Travelling Ticket Examiner, etc.
- Avoid using the ampersand (&), use 'and' instead. For example: Left luggage **and** lost property.

- When used in continuous text, a character space should not be inserted either side of the hyphen. For example: self-service. Also, italics or script texts should be avoided.
- A hyphen should not be used to indicate a time or day period, the term 'to' should be used instead, for example: "Monday to Saturday" or "18:00 to 21:00".
- Dates should be displayed in the order of day, month, year i.e., dd mm yyyy e.g., 01 Jan 2017. Suffixes such as 1st or 2nd should not be used. The preferred abbreviation for months is as follows: Jan, Feb, Mar, Apr, May Jun, Jul, Aug, Sept, Oct, Nov and Dec.
- The symbol for the Indian Rupee shall be as per the Bureau of Indian Standards IS 13194:1991. The typeface "₹" as the symbol for the Indian Rupee shall be used. The words "INR" or "Rs." shall be avoided on signages everywhere without exception. The characters "₹" and "p" should not appear together in the same figure. For example, values equal to or greater than ₹ 1 should be shown with the "₹" symbol, i.e., ₹ **2.00** and values less than ₹ 1 should be shown with the character "p", i.e., **20p**. The decimal point should be represented with a full point ".".
- The terms 'number' and 'No.' should not be used in phrases such as 'platform 5' or 'telephone +91-XXXXXXXXXX'.
- All times should be shown in the 24-hour clock. A colon ":" should be inserted between the hours and minutes
- Upper case letters (capitals) are only used for the initial letter of a sentence or line of information on a sign panel. All other text is to be displayed in lower case.
- Information of Disabled Friendly Facilities may be provided as per the facility available at the station and as per the statutory requirements.
- The commercial retails at stations shall have standardised and similar size/ format of utility boards.



Section - 3

Standard Types of Signages

(Refer Para 1.2 (c))

Note: The colour coding shall be as per Para 2.4: Colour Scheme. Various sign board shapes and types proposed in this document, along with type code and examples, are as following:

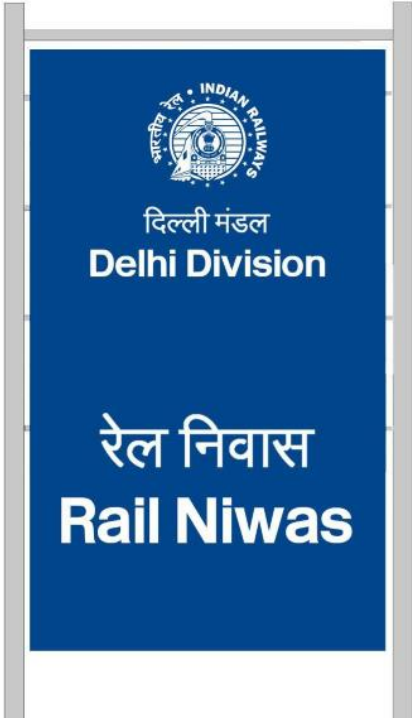
3.1 Flat Signage Indoor


Signage Type		Example
Non-illuminated Double Side (Back-to-Back) Signage	F1	
Non-Illuminated or Illuminated (Wall Mounted) Single Side Signage	F2	

Section -3: Standard type of Signages

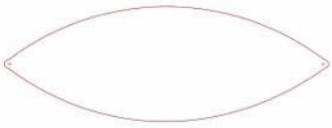

<p>Illuminated Double Side (Back-to-Back) Signage</p>	<p>F3</p>	
<p>Illuminated (Wall Mounted) Single Side Signage</p>	<p>F4</p>	

3.2 Flat Signage Outdoor







Signage Type	Example	
<p>Circulating area Flat double-sided signage</p>	<p>C1</p>	



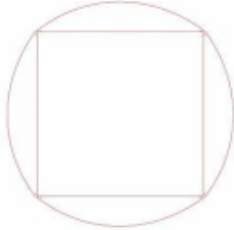

<p>Circulating area Flat Single sided signage</p>	<p>C2</p>	
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3.3 Illuminated Elliptical Signage

Signage Type	Type Code	Shape	Example
<p>Double sided Horizontal Elliptical</p>	<p>E1</p>		

Section -3: Standard type of Signages

<p>Single sided Horizontal Elliptical</p>	<p>E2</p>		
<p>Double sided Horizontal Semi- Elliptical</p>	<p>E3</p>		
<p>Single sided Vertical Semi- Elliptical</p>	<p>E4</p>		

<p>Double sided Vertical Semi- Elliptical</p>	<p>E5</p>		
<p>Four-sided pole mounted Elliptical</p>	<p>E6</p>		

Section - 4

Technical Specifications

4.1 Materials:

The material for signages recommended above shall be non- reflective matt finish. The surface shall be processed to prevent glare. Some suggested materials for signage include Aluminium Composite Panel (ACP), acrylic, Concrete, Steel, wood etc. The frame of the sign boards should be sturdy and corrosion resistant. The material for fabrication of the frame box should preferably be powder coated aluminium sheet or fibreglass. The signages meant to be installed without any shelter or roof above should be designed as to prevent entry of water inside, even under heavy rains. Weatherproof polymer lining should be used. The general technical specifications of the material which are for guidance only and are not mandatory of the material for different type of signage boards are outlined below:

4.1.1 Elliptical Illuminated Boards:

All the elliptical signage shall be illuminated. The display sheet shall be of unbreakable translucent polycarbonate sheet of 2mm to 3mm thickness. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 100 µm thickness and shall be firmly pasted on display sheets. The text / graphics matter visibility shall not be less than 160 deg.

The Top Profile of Elliptical Board shall preferably be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded. The profile shall have a suitable slot at an angle of 80-84 degree to firmly hold the polycarbonate sheet to its required shape. Bottom, top and side Profile shall be made of the same material having 2mm to 5mm wall thickness. The frame of elliptical boards shall preferably be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15µm thickness (Grade AC-15) in approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment.

4.1.2 Aluminium Composite Panel (ACP) Boards:

Board material Aluminium Composite Panel of 4mm total thickness sheet with 0.5mm thick aluminium foil skin on both sides along with minimum 25-micron PVDF coating on top coil and polymer/epoxy coating on Back Coil of 4 to 7 microns. The sheet shall be fixed on aluminium substructure of required size fixed with stainless steel fastenings system and making 25mm grooves and applying non staining and non-streaking sealant with Baker rod. ACP boards can be used with either Vinyl Sheet or Retro reflective sheet.

4.1.3 Aluminium Sheets:

Aluminium sheets used for sign boards shall be of smooth, hard and corrosion resistant aluminium alloy conforming to IS 736 material designation 24345 or 1900. The sheets shall be used with digitally printed reflective vinyl graphic.

4.2 Adhesives:

Two types of adhesives can be used to paste the base sheeting with top surface sheet. Pressure sensitive adhesive of the aggressive tack type requires no heat, solvent or other preparation for adhesion to a smooth clean surface. Tack free adhesive activated by heat requires heat for making a durable bond between materials. The heat is generally applied in a heat vacuum applicator. The adhesive thus formed shall have a durable bond to smooth, corrosion and weather resistant surface of the base plate such that it shall not be possible to remove the sheeting from the sign base material in one piece by use of sharp instrument. The surface preparation and application process shall be in accordance with the manufacturer's specifications.

4.3 Fabrication:

The base material shall be first removed of any grease, oil, scale/dust or any other contaminants with the help of either acid or hot alkaline to obtain a smooth plain surface before the application of top surface sheet. If the base material surface is rough, approved surface primer shall be used. After cleaning, the materials shall not be handled, except by suitable device or clean canvas gloves, between all cleaning and preparation operation and application of top surface material.

Complete sheets of the material shall be used on the signs except where it is unavoidable. At splices, sheeting with pressure sensitive adhesives shall be overlapped not less than 5 mm. Sheeting with heat activated adhesives may be splices with an overlap not less than 5 mm or butted with a gap not exceeding 0.75 mm. The material shall cover the sign surface evenly and shall be free from twists, cracks, and folds. Cut-outs to produce legends and borders shall be bonded with the sheeting in the manner specified by the manufacturer.

4.4 Text, Pictograms and Arrows:

The information on the sign boards shall either be screen printed or of cut outs. Screen printing shall be processed and finished with materials and in a manner specified by the sheeting manufacturer. Cut-outs shall be of materials as specified by the sheeting manufacturer and shall be bonded with the sheeting in the manner specified by the manufacturer.

Annexure A

Do's and Don'ts

(Refer Para 2.1 and 2.5)

Examples of rightly (designated with ✓) and wrongly (designated with ✗) ranged text on signs:

i. Alignment:

Alignment and ranging must follow the direction of arrows. That is, if the arrow is pointing *Right*, then the text must be aligned to the *Right*. Change in gradient/ramp location shall be informed by sign in advance especially in fast moving spaces.

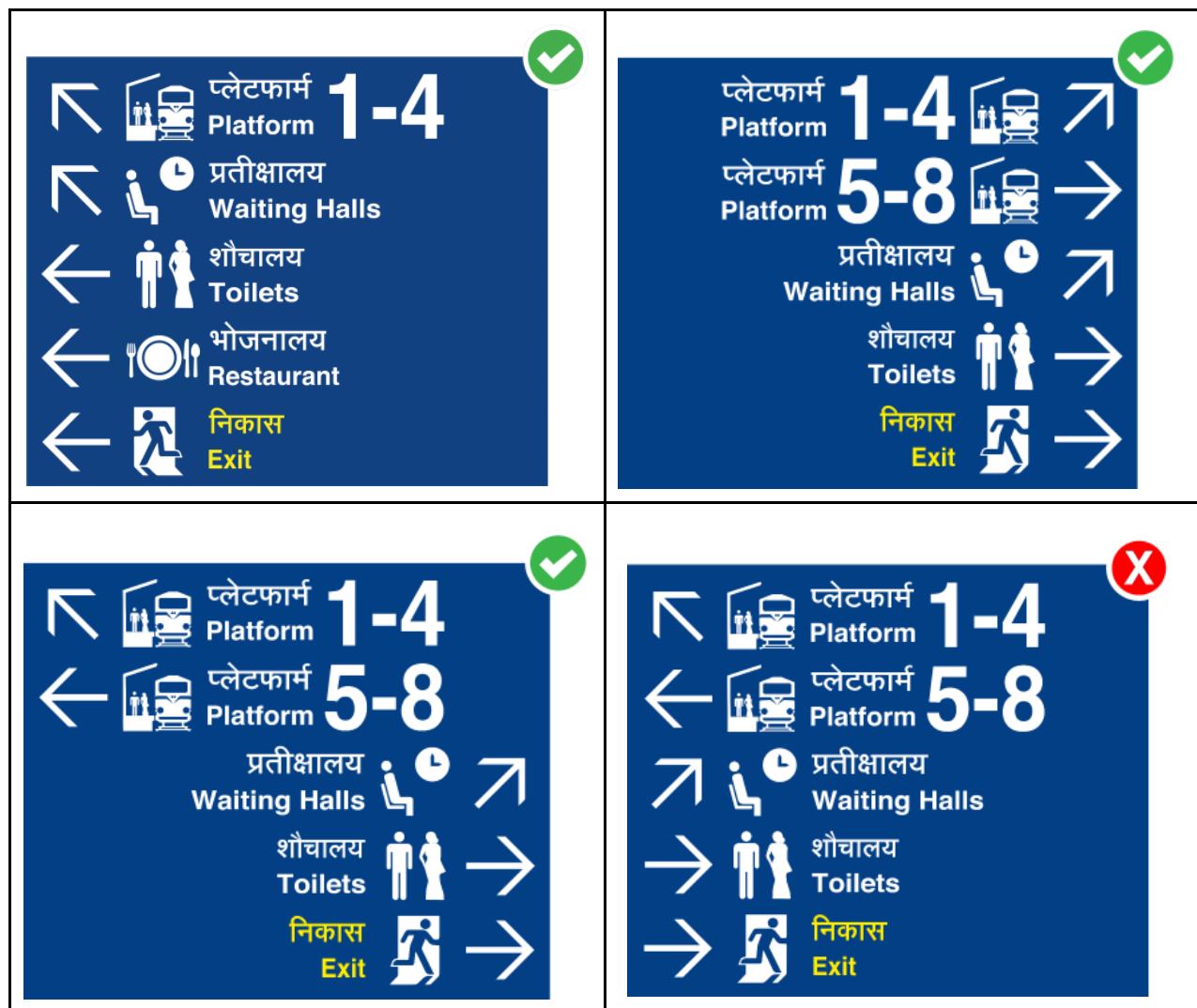


Figure 19: Example of Right and Wrong Text Layout

ii. Information Hierarchy:

A hierarchy of importance should be followed within the station premises correlating with the station users' needs.

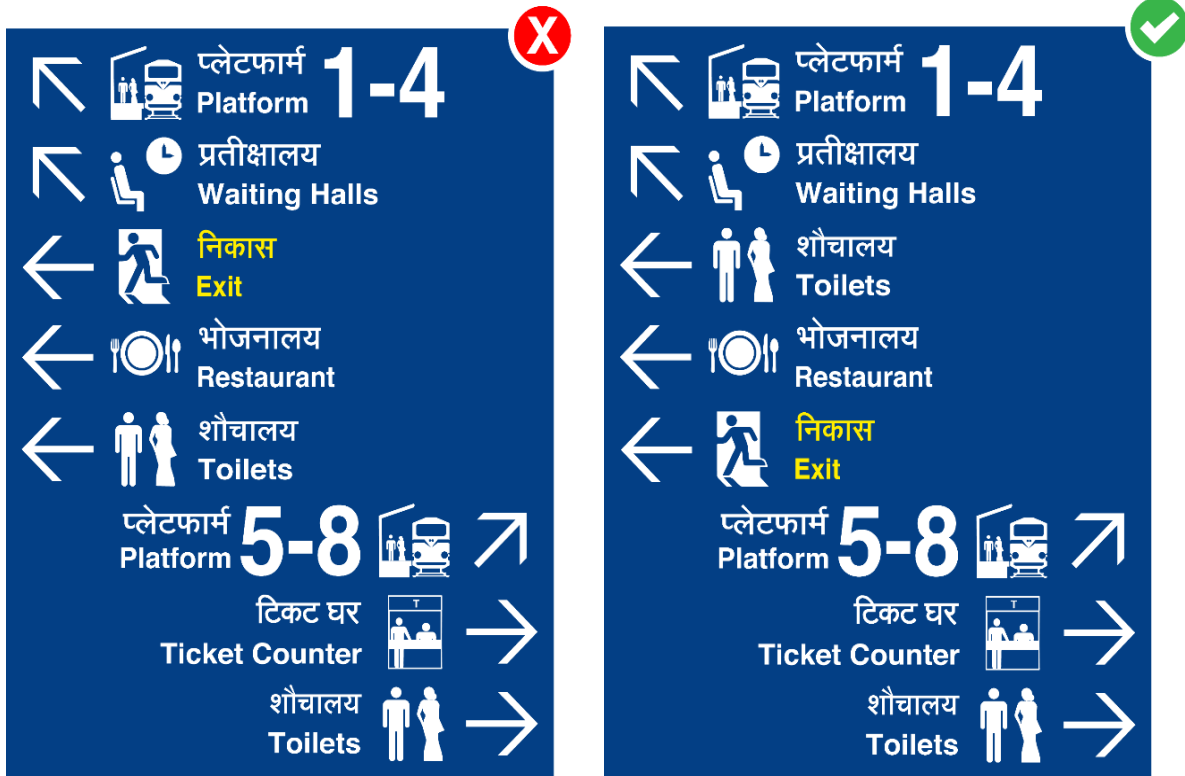


Figure 20: Examples of right and wrong informational hierarchy

Annexure B

Pictograms

(Refer Para 2.6)

The visual depiction of the pictogram icons is given in the table below. The Pictograms illustrated here are shown in monochrome and colour may be suitably changed as per the colour scheme mentioned in Para 2.4. The vector images of the illustrated below pictograms can be directly downloaded from Railway Board Website.

				
Platform	Ticket Counter	Assistance	Information	Lost and Found
				
Gents Toilet	Ladies Toilet	Divyangjan Friendly Toilets	Ladies Divyangjan Toilet	Gents Divyangjan Toilet
				
Divyangjan Water Tap	Drinking water fountain	Wheel Chair Assistance	Accessible Ramp	Tourist Info.
				
Waiting Hall	Executive Lounge/AC Waiting Hall	Squat	Drinking Water	Lift



Wi-Fi Zone



CCTV



EV Charging



A.T.V.M



A.T.M.



Vision Impaired



Hearing impaired



Limited walking capability



Pedestrian



Sahyog Counter



Escalator



Escalator - Up



Escalator - Down



Travelator



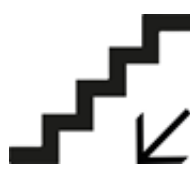
Cloak Room



Stairs



Stairs - Up



Stairs - Down



Accessible Emergency Exit



Railway Offices



Fire Extinguisher



Litter



Caution wet floor



Recycle



Taxi



Bus



Bicycle



Two-Wheeler



Three-Wheeler



Parking



Station Manager



Pedestrian



Mobility Assistance



No Smoking



Baby Care



Meeting point



Retiring Room/
Dormitory



Running room /
TTE Lobby



Mobile Charging



Priority seating



Priority Seating



Soap Dispenser



Hand Dryer



O.R.H.



Book Stall



Restaurant



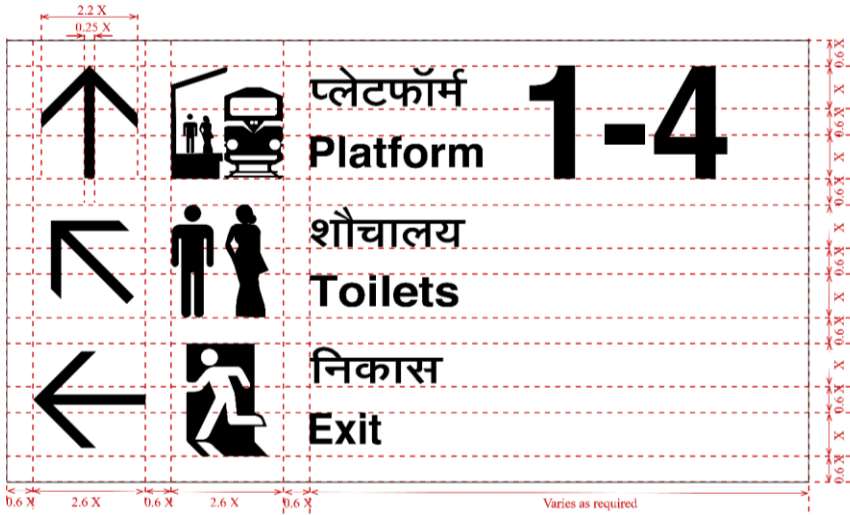


Exit




If a representative icon is not available in the list, then reference shall be drawn from Industry wide used good icons and used with approval of concerned DRM.


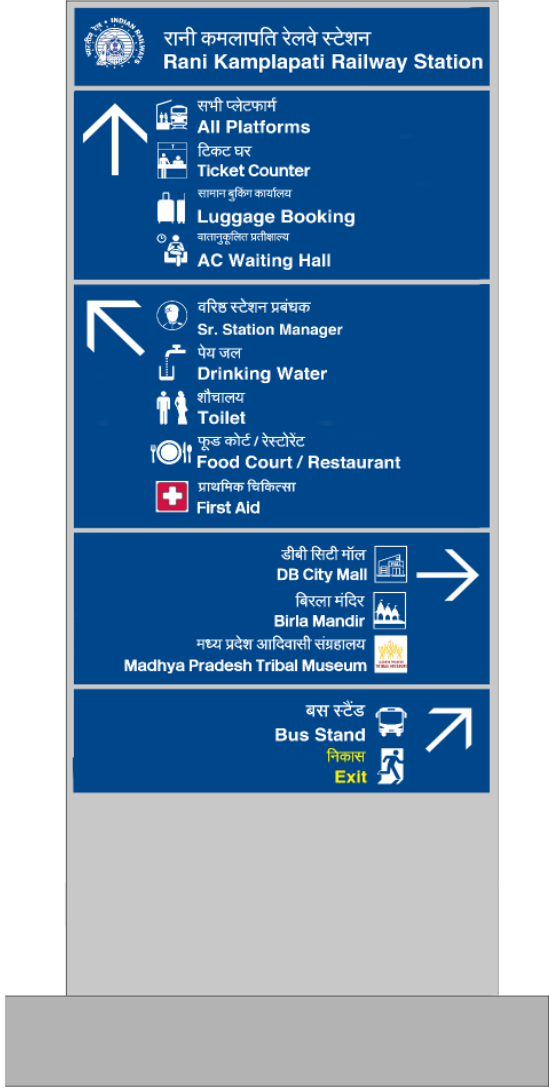
Annexure C





Signages for a Small/Medium Size Station




Indicative type of boards and their positioning for a small/medium station is illustrated as under. The location, type of board and graphic are indicative for the purpose of guidance only, actual type of board, location and matter on sign board may be decided based on the station specific requirements like space availability, location of various utilities, viewing distances etc. However, the graphics should be developed as per the guidelines in this document:

Board Positioning and Board Type	Board Drawing
<p>Signage board proportions showing text/line spacing</p>	 <p>The diagram shows a rectangular signage board divided into three horizontal sections. The top section contains an upward arrow, a train icon, and the text 'प्लेटफॉर्म Platform 1-4'. The middle section contains a leftward arrow, a man and woman icon, and the text 'शौचालय Toilets'. The bottom section contains a leftward arrow, a person walking icon, and the text 'निकास Exit'. Dimensions are indicated: 2.2X and 0.25X for the top section, 0.6X for the middle and bottom sections, and 2.6X for the width of each section. A note 'Varies as required' is at the bottom right.</p>
<p>Station name sign on Gantry at each main entrance to circulating area Type: C2 Size: L (value as required) X Height 750 mm;</p>	 <p>A blue rectangular sign with white text and the Indian Railways logo. The text reads: 'रानी कमलापति रेलवे स्टेशन में आपका स्वागत है' and 'Welcome to Rani Kamalapati Railway Station'.</p>
<p>Station name sign on Gantry at each main entrance to circulating area (When used with lane identification) Type C2 Size: L (value as required) X Height 900 mm</p>	 <p>A blue rectangular sign with white text and the Indian Railways logo. The text reads: 'रानी कमलापति रेलवे स्टेशन में आपका स्वागत है' and 'Welcome to Rani Kamalapati Railway Station'. Below the text are four icons with labels: 'पैदल यात्री Pedestrian', 'कार / टैक्सी Car / Taxi', 'बस Bus', and 'पार्किंग Parking'.</p>

<p>Lane identification on the LHS side of each lane, flag type on pole mounted (indicating Lanes for Taxi/ Auto/ Drive through/ Bus/ Private Car, etc.)</p> <p>Type: C2</p> <p>Size: Length (value as required) X Height 300mm</p>		
<p>Pedestrian signage in circulating areas indicating Entry Gates to station concourse, FOBs/ Escalator, Railway Offices/ utilities in circulating area (like PRS, Parcel booking etc.), Parking, Pre-paid auto/taxi, Bus Stop, Exit etc.</p> <p>Type: C1</p> <p>Size: As per number of Information, character height 100 mm as per para 3 of Section 2 but not exceeding 2.5 m in height.</p>		





<p>Entry gate no. at Concourse entry, FOB no. at FOB/Escalator entry</p> <p>Type: C2</p> <p>Size: Length (value as required X Height 400mm)</p>	
<p>Floor mounted Pylon sign boards having identification and directional information placed in concourse:</p> <p>Type: C1 when erected outside station building and F3 or F1 when erected inside station building or in platforms.</p> <p>Size: Based on number of information on board, Text size as per Para 3 of Section 2 but not exceeding 3 m in height.</p> <p>Positioning: It shall be decided such that it does not conflict with the free movement of passengers.</p>	


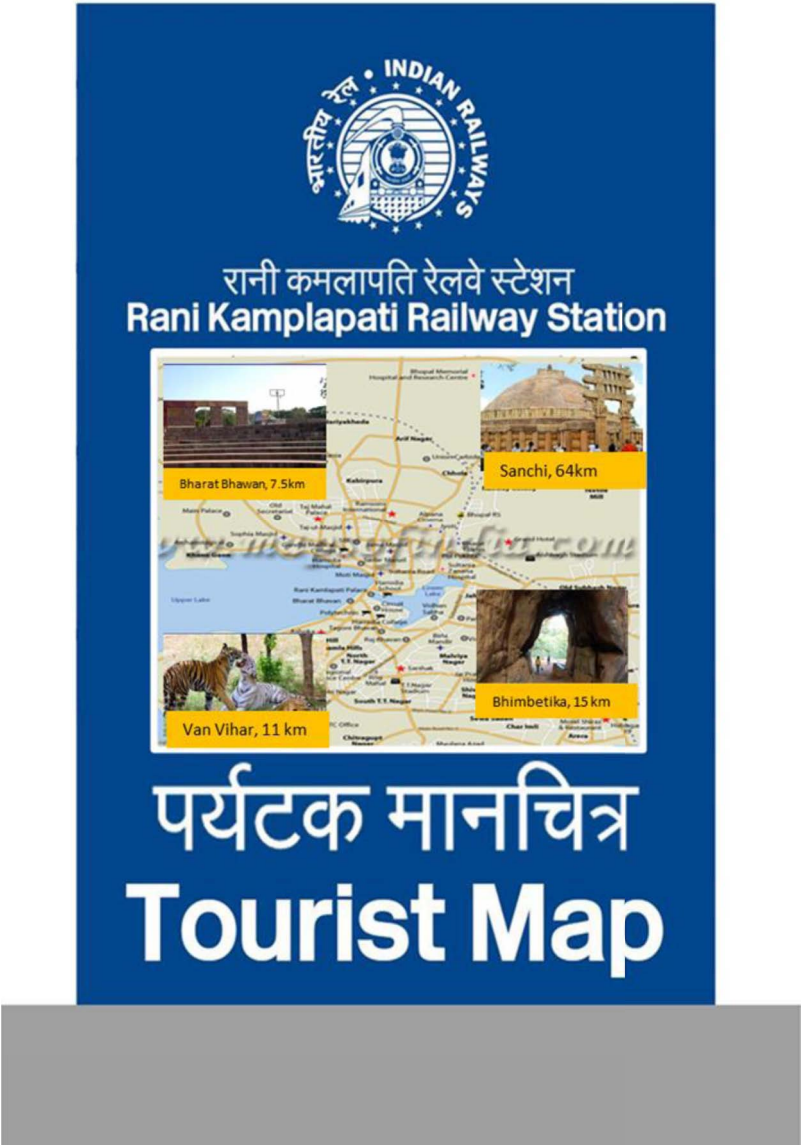
<p>Signage indicating various utilities, offices etc. located in concourse (like Ticket Window, ATVM, Enquiry, Food court, Toilets, Railway offices, retiring rooms, ORH etc.)</p> <p>Type: F3 if double sided (Hanging etc.); F4 if single sided (wall mounted etc.)</p> <p>Size: As per number of information, character height as per Para 3 of Section 2. One Board size not exceeding 1 m in height.</p>	 <p>ए.टी.वी.एम A.T.V.M सीढ़ियों के माध्यम से सहयोग via Stairs Sahyog शौचालय Toilet</p>	 <p>टिकट घर Ticket Counter रेलवे कार्यालय Railway Offices ओ.आर.एच लिफ्ट के माध्यम से O.R.H via Lift</p>
<p>Signage indicating way leading from concourse to platform, FOB etc, for train boarding</p> <p>Type: F3 if double sided (Hanging etc.) F2 if single sided (wall mounted etc.)</p> <p>Size: Length (Value as required) X Width 400m</p>	 <p>प्लेटफॉर्म 1 की ओर Way to Platform 1</p>	
<p>Signage related to DO's DON'Ts in concourse (like no smoking/no spitting etc.)</p> <p>F2 single sided (wall mounted etc.)</p> <p>Size: Length (Value as required) X 300mm</p>	 <p>थूकना मना है No Spitting कूड़ा मत फेंकें No Littering धूम्रपान निषेध No Smoking खाना-पीना मना है No Food - Drinks</p>	


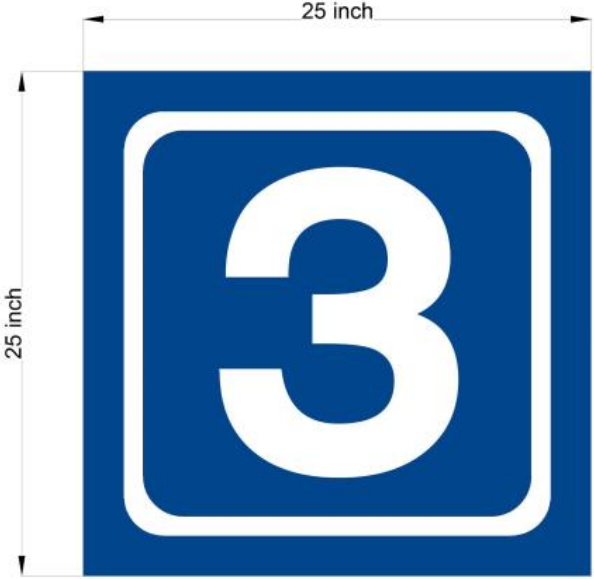
<p>Signage for security check near the DFMD/X-Ray baggage scanner</p> <p>Type: F3 if double sided (Hanging etc.) F4 if single sided (wall mounted etc.)</p> <p>Size: Length (Value as required) X 300mm</p>	
<p>Signage for prohibited items near the DFMD/X-Ray baggage scanner (The list is indicative)</p> <p>Type: F2</p> <p>Size: As per information on boards but not to exceed 2.5 m in height</p>	
<p>Entry board to platform entry with PF no.</p> <p>Type: F4 or F3 (depending whether its single sided or double)</p> <p>Size: Length (Value as required) X 400mm</p>	

Annexure - C: Signages for a Medium Size Station

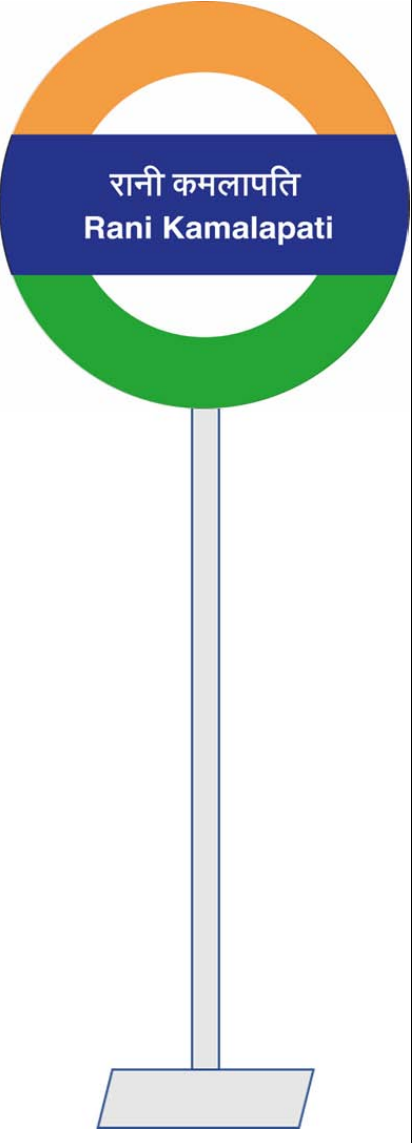

<p>In front of entry from concourse to end PF (to be hanged from PF shelter, Parallel to track) indicating utilities, offices etc. to the left and to the right of entry</p> <p>Type: F4</p> <p>Size: not to be exceed 1.2m</p>		
<p>On all PFs, in middle of PF shelter, perpendicular to track, roof hanging sign indicating utilities, offices, exit/transfer (with exit name/FOB and availability of escalator/lift) etc. ahead, at every 100 metres</p> <p>Type: F4 or F3 (depending whether its single sided or double)</p> <p>Size: As per number of information, character height 100mm as per Para 3 of Section 2. The number of information shall not exceed 4 numbers per sign board.</p>		
<p>Office/Utilities name board near entry gate of such utilities wall mounted</p> <p>Type: F4</p> <p>Size Length (as per value required) X Width 300mm</p>		

<p>General information boards (like helpline no., complaint no., Wheel Chair availability, first aid etc.) and prohibition boards (like no smoking/no spitting etc.) on platforms.</p> <p>Type: F2</p> <p>Size: As per information on boards but not to exceed 2.5 m in height</p>	 <p>The image shows a blue rectangular sign with white text and icons. At the top, it says 'सामान्य सूचना बोर्ड' and 'General Information Board'. Below this, there are four sections: 'हेल्पलाइन XXXX' with a phone icon, 'व्हीलचेयर सहायक' with a wheelchair icon, 'शिकायत XXXX' with a phone icon, and 'प्राथमिक चिकित्सा' with a red cross icon.</p>
<p>Boards indicating water booth and toilet on PF</p> <p>Type: F3</p> <p>Size: Length (Value as required) X Height 300mm</p>	 <p>The image shows two blue rectangular signs. The top sign says 'पेय जल' and 'Drinking Water' with a water tap icon and a right-pointing arrow. The bottom sign says 'शौचालय' and 'Toilet' with icons of a man and a woman and a right-pointing arrow.</p>
<p>At entry to FOB staircase/escalator from PF indicating PFs and exit on RHS and LHS</p> <p>Type: F4</p> <p>Size: Length (Value as required) X Height 600mm</p>	 <p>The image shows two blue rectangular signs. The left sign has a left-pointing arrow, a train icon, 'प्लेटफॉर्म Platform 3-5', and 'निकास पहाड़गंज Exit Paharganj'. The right sign has a right-pointing arrow, a train icon, 'प्लेटफॉर्म Platform 1-2', 'अजमेरी गेट निकास Exit Ajmeri Gate', and a right-pointing arrow with a person icon.</p>
<p>On FOB (perpendicular to FOB), indicating PF number, along with ramp/ escalator/ lift indication, on either side and exit ahead with exit name</p> <p>Type: F4</p> <p>Size: Length (Value as required) X Height 400mm</p>	 <p>The image shows three blue rectangular signs. The first sign has a left-pointing arrow, a train icon, 'प्लेटफॉर्म Platform 1', and 'Via Ramp'. The second sign has an up-pointing arrow, a train icon, 'प्लेटफॉर्म Platform 2-5'. The third sign has 'निकास Exit', a person icon, and an up-pointing arrow.</p>

<p>Exit indication with exit name on FOB wall, parallel to FOB in front of each staircase/escalator landing on FOB</p> <p>Type: F4</p> <p>Size: Length (Value as required) X 400mm</p>	
<p>Tourist map/area map in arrival lobby/ in front of terminal landing of each FOB</p> <p>Type: F3</p> <p>Size: Height 2.5 m X Width 1.2m</p>	

<p>Round (four-sided board) pole mounted sign in circulating area for pre-paid taxi/auto, parking, pick up point etc.</p> <p>Type: E6</p> <p>Size: Length 600mm X Height 600mm</p>	
<p>Platform Number Board (Hanging from Platform Shelter, Double Sided) To be provided at every 100 m</p> <p>The boards shall be suitably staggered horizontally to give a clear direction from a distance.</p> <p>Type: F3 or F4 (depending whether its single sided or double)</p> <p>Size: Length 25-inch X Height 25-inch</p>	

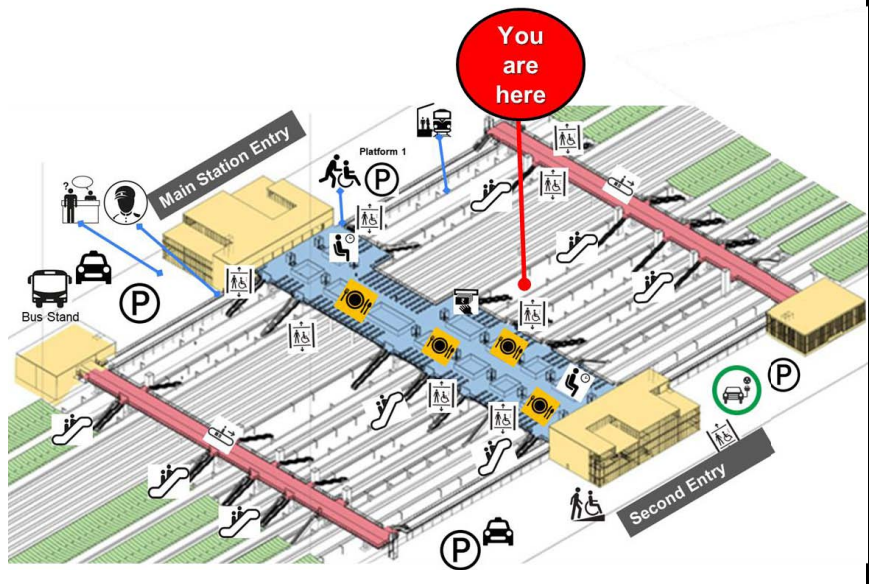
<p>Station Name Board (Primary)</p> <p>Type: Special</p> <p>Size: As mentioned</p> <ol style="list-style-type: none"> To be provided at both ends of each PF at right angle to track. Name in local language, Hindi & English (all in same font size) Size of primary character text shall be 300mm. Where boards are provided parallel to track due to narrow PF, station name on both sides Height of the board may be increased from 900mm as per site requirement. Secondary Station Name Board to be provided at an intermediate location at a very long PF at right angle to track. 	
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Station Name Board (Tertiary)		
<p>Type: F4</p> <ol style="list-style-type: none"> 1. Size of board 1m diameter. 2. Local Language on top, Hindi in middle and English at bottom (in case Hindi is local language, it may be used at top as well as in middle) 3. Size of primary character text shall be 75 mm 4. The central horizontal axis of the board should be at a height of 2m above the platform surface. 5. Number of Boards at Stations shall be such that at least one name board is visible from any compartment of a standing train but provided such that it is not conflicting with the natural movement of pedestrians. 6. The boards shall be either pole mounted, wall mounted or attached to Platform shelter stanchion. 7. Colour scheme shall be as per the Tricolour Flag of India. 		

Orientation Map Boards at Concourse and Platform areas.

Type: F4 or F2

Size: Station Specific



Annexure D*

Signage Used at CSMT for Identification of Different Lines

(Refer para 2.8)

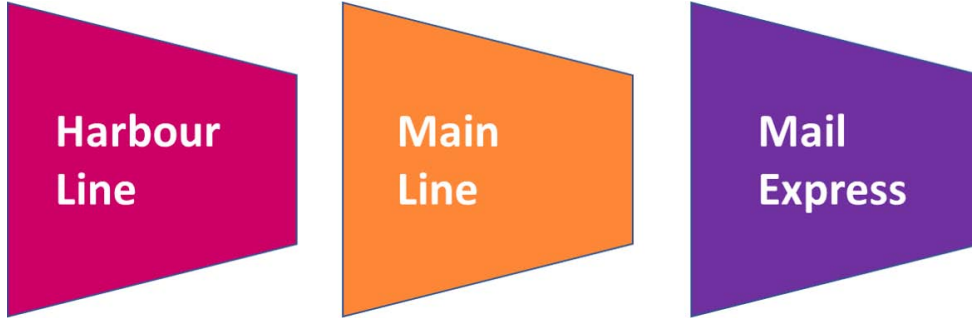


Figure 21: CSMT: Front Gate Elevation

* The reference provided is only for guidance and Railways are required to provide signage board based on station specific requirement.



Figure 22: CSMT: Circulating Area

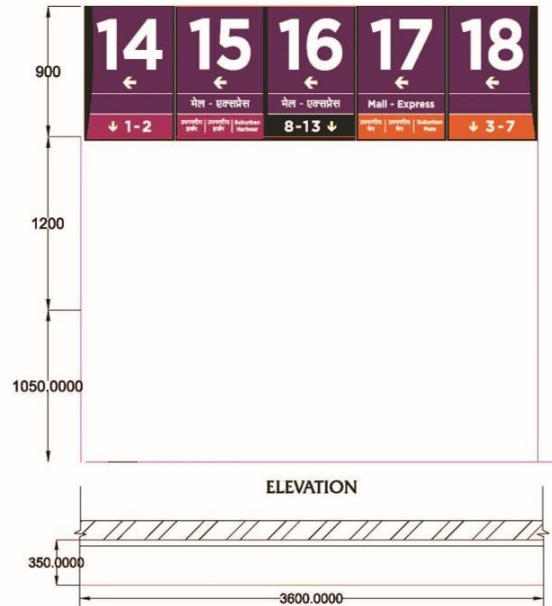


Figure 23: CSMT: Direction Boards



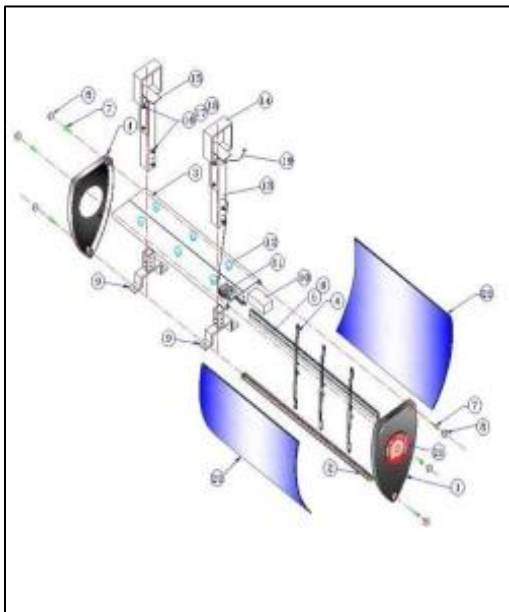
Figure 24: CSMT Individual Platform Boards

Annexure E *

Specifications of Signages Provided at CSMT Station

1. Technical Specification for Elliptical / Parabolic Signage Boards

Display Board shall be Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE). All the elliptical signage shall be illuminated. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendared vinyl of 70 µm thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4- 8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.



Structure:

- | | |
|-----------------------------|---------------------------|
| 1. Elliptical Cap | 11. Connector |
| 2. Aluminium Corner Profile | 12. Grommet |
| 3. Aluminium Top Profile | 13. Square Tube |
| 4. Bracket for Heat Sink | 14. Hanging Bracket (Top) |
| 5. Heat Sink | 15. Plate |
| 6. LED Strip | 16. Hex Bolt M10 |
| 7. Screw M5 | 17. Hex Nut M10 |
| 8. Screw Cap | 18. Plain Washer M10 |
| 9. Hanging Bracket | 19. Electric Wire |
| 10. LED Driver | 20. Display Sheet |
| | 21. Logo |

Figure 25: Technical Specification of Elliptical Board

** These are for reference purpose only. The detailed specifications including material specifications shall be prepared by Zonal Railways as per specific station requirements and Good Industry Practices.*

1.1. Elliptical Glow Board Frame

The frame shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15µm thickness (Grade AC-15) in approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment.

1.2. Top Profile

Top Profile of Elliptical Glow Board shall be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm and width approx. 170 mm/ 137 mm/ 268 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded. The profile shall have a slot of approx. 4.8 mm & 7mm width on both sides to hold 2/3/4 mm thick polycarbonate sheet. The slot shall be at an angle of 80-84 degree to face firmly hold the polycarbonate sheet in elliptical and parabolic curvature. The Elliptical / Parabolic curvature of the polycarbonate sheet shall be maintained by its inherent flexural tension property. It should have circular slots for M6 self-tapping cheese head screws to fix the end caps. Along the centre line of the top of this profile there shall be a 10mm x 3mm slot for press fitting the heat sink holding brackets in place with circular slot for M6 self-tapping screw should be made available. There shall also be a flat extension of 12mm to rectangular slot for additional support/fixing screws to firmly hold the heat sink holding bracket. The Total height of the central projection should be maintained to minimize obstruction to light illumination.

1.3. Bottom, Top and Side Profile

Bottom, top and side Profile full/ half of the Elliptical Glow Board shall be made of extruded anodized Aluminium Alloy hollow profile (6063-T6) having 2mm to 5mm wall thickness. It should have internal ribs with approx. 1.5mm/ 2.5mm thickness and 4.5mm, 4.2mm wide slot to firmly hold the polycarbonate sheet in elliptical and parabolic curvature using its flexural tension. Total external width & Height of the bottom, top & side profile should be full of approx. 34mm x 48mm R 11.7mm / 42mm x 50mm, R 24.3mm / 42mm x 80mm, R16mm / 84mm x 80 mm, R16mm without compromising the strength and causing any obstruction to the light while giving maximum viewing area. The bottom corner shall have a curvature of approx. R11.7mm, 24.3mm and 16mm to appear in continuous flow of elliptical Curvature of polycarbonate sheet. This also shall add to aesthetic beauty of the whole Elliptical Glow Board.

1.4. Heat Sink Holding Bracket

Heat Sink Holding Bracket shall be of approx. length 184mm/ 252mm/ 260mm/ 324mm/ 397mm/ 537mm/ 551mm injection moulded in Nylon 6 material & 1130mm/1156mm/861mm in MS machine formed powder coated for its strength & flexibility. The bracket shall be of 'I' cross section of sizes approx. 102mm x 15mm x 10mm/1080mm x 25mm x 5mm/ 1156mm x 50mm x 5mm/861mm x 50mm x 5mm at mid portion and it should reduce proportionately in slant at both the ends for nylon 6mm, MS 5mm. thickness without obstructing the light and without compromising on strength. The 'I' cross section nylon shall have ribs for maintaining stiffness. Both the ends of HSH brackets shall have locking clasp to press fit in 10 mm x 3mm slot of top

and bottom profile. The mid portion shall have offset of 14mm for nylon and 12 mm for MS. Central clasp shall be moulded in the Heat Sink Holding bracket to firmly hold the Heat Sink along the longitudinal axis of Elliptical Glow Board. The central clasp shall have two prong sets to hold the heat sink across its diagonal or along its sides as required. Two holes as per requirement shall be provided near the end clasps firmly. Two holes for nylon & MS shall be provided on both sides of central clasp to fix at both profiles Two holes shall be provided on both sides of central clasp to fix the mid portion of bracket to strip in the event longer bracket if required the mid portion of HSH bracket approx. 3 mm thick x 10 mm wide Aluminium strip in the event longer bracket is required or more than one Heat Sink is required for bigger size of Elliptical Glow Board.

1.5. Heat Sink

Heat Sink shall be 25-26 mm hollow anodized Aluminium Alloy (6063-T6) profile of 2mm thickness. Corners shall be flattened to form a square across flat to hold the heat sink diagonally. Heat sink must be press fit horizontally and diagonally from all 8 sides. All the four sides shall have dovetail of slots. Circular slots of dia. 2 mm shall be provided at all four internal corners to tight fit the pins of Heat Sink connector. There shall be a set of three of approx. 1.5mm thick ribs central of approx. 5mm height and two sides of approx. 2mm height. Provision for maximize the surface area to aid in faster cooling as well as for additional strength to hollow square profile.

1.6. Heat Sink Connector

Heat Sink connector shall be a moulded from polycarbonate profile of same cross-sectional dimensions as that of Heat Sink. The thickness of the connector shall be approx. 5 mm. Two semi-circular slots shall be provided on each face. Provision to pass out hot air from heat sink should be made. Four pins shall be moulded on four corners on both the faces of Heat Sink connectors to be press fitted in Heat Sink profile.

1.7. Elliptical Glow Board End Cap

End caps full / half with elliptical and parabolic shape shall be made from injection moulded polycarbonate granules 2 mm thick / SS 304 1.2 mm thick / Aluminium die casted 8 mm thick having curve on top side and internal hollow and elliptical base at bottom side with reflective internal surface. The End caps shall be perfectly opaque.

The boards shall be such that the text & Graphics displayed on the Polycarbonate sheet held in these end caps should be completely visible even if it is viewed directly from the bottom or any direction; the text is very much legible. Polycarbonate cap Internal face shall be cross ribbed 2mm x 3mm to increase the strength of the end cap. Eight nos. locating pins tapering towards collar of the end cap shall be provided near the internal periphery of the end cap. These pins shall firmly hold the 3mm translucent polycarbonate sheet in elliptical / parabolic curvature. Circular cut-out of dia. approx. 80mm shall be provided for illuminated branding or opaque cap shall be provided in case of none branding. For branding translucent material fitting provision should provide without shadow on branding. 2mm x 5mm Ribs approx. 20mm inside and parallel to the external periphery shall be provided for additional strength. Riser buttons shall be provided along the internal ribs to block the cut-outs using opaque sheet screwed through these buttons. These buttons may also be used to mount the LED projector when required. Projector

fitting bracket shall be fixed to end cap to align with oval slot. Three nos. cap holding sockets shall be moulded at three corners of the End Cap. Two nos. locating pins shall be provided on each cap holding sockets and shall be provided at the bottom of these pins for additional strength. This pin shall locate in the top and bottom Aluminium profile. Two tapering ribs shall be provided to cap holding brackets for additional strength. Three through slots of approx. 17 mm x 1.5 mm shall be provided near the top of end cap for heat ventilation. Moulded Screw caps shall be provided to externally press fit in the cap holding sockets. The end cap shall be Moulded Shatter proof opaque polycarbonate as per IS 14443 or latest amended with thickness not less than 1mm and of reputed Indian make using Bayer granules. SS 304 elliptical or parabolic cap should have approx. 20 mm vertical collar at corners of suitable dia. hole to interlock with profile and structure, square bracket at bottom cap should be provided to interlock vertical square structure pipe and top cap should have cut out to thorough pass the structure pipe with the provision of ventilation. Aluminium die Casted cap top should have curvature of R 1123-1125 mm and internal hollow with wall thickness of 6-8mm with polished and primed with metallic PU gloss lacquer coated. internal 2 nos. cap holding socket shall be casted at both corners of cap to interlock with side profile, Bottom casted cap should have side curvature of - R78-79mm / 112-113 mm and hollow of approx. 100 mm with internal 2 nos. cap holding socket shall be casted at both the corners of cap to interlock with side profile. Vertical rib should provide to interlock polycarbonate sheet with inner pins support should be flushed with side Aluminium profile. Cap should have a hole with die moulded dia. approx. 12 mm grommet to pass main supply wire.

1.8. Podium

Elliptical shape one piece cut, top & bottom 3mm thick with size approx. 1170 mm x 512 mm x 508 mm at R914mm at corner R 117mm / 1643 mm x 575 mm x 508 mm at R 1652mm at corner R 92.5mm of SS 304 with parabolic shape cut at centre having dia. approx. 8 mm, 2 hole on top for matching with bottom cap of Elliptical Glow Board for fixing and interlocking without welding and bottom approx. 12 mm 4 hole for foundation fitting should be provided. Provide approx. 4 mm 9 holes for ventilation at top and Backside open able door system with lock & key. SS 304 grade frame structure of size approx. 25mm x 50mm x 1.2mm square with vertical and horizontal supports covered with SS 304 sheet of 1.2mm thick with powder coated in elliptical shape machine formed matching with top of podium should provide Anchor fastener fitting provision has to be made for ground fixing.

1.9. ACP Cladding

Design, fabrication & installation of 3mm thick exterior grade PVDF coated Aluminium composite panels (Timex, Alucobond) of having 0.5 mm thick Aluminium PVDF coated sheet with specific standard colour + 3 mm core material + 0.5 mm Aluminium sheet chemically treated (back sheet) bent with 5mm uniform machine grooved as per requirement, fitted on anodised Aluminium/ anodized Aluminium angle Primer with PU coated MS rectangular grid work. Grid for supporting ACP shall be of size approx. 38mm x 38mm x 1.5mm at a distance of Heat sink fixed in Elliptical Glow Board should accurately match Horizontally & Vertically along with existing structure on site. Hardware, fixtures, brackets, anchor, fasteners of SS 304 grade etc. complete duly sealed with weathering silicon (DOW / GE) for circular columns and curved beams etc. Provision of MS clamp/ bracket for fixing with existing structure vertically, horizontally or slanted without welding

and with level size alignment adjustment and interlocking provision without compromising strength and structural stability of frame should provide.

1.10. Text/Graphics

Text/Graphics shall be computer cut/printed on 100 µm Monomeric calendared Vinyl matt sheet of reputed make (Metamark / 3M)

1.11. Led Ribbon Light Illumination

Ribbon light shall be of waterproof SMD 2835. The width of Ribbon light shall be 12 +/- 1mm. This shall be slide into the dovetail grooves of the heat sink & firmly pasted on all four sides of the heat sink. The light emitted from LED ribbon light should be partially reflected from the elliptical and parabolic curvature of white glossy polycarbonate sheet multiple times. Any obstruction or low brightness at the edges of the beam should be taken care of. Uniform illumination Average 4W-8W/ Sq.ft.

1.12. Sign Substrate

Sign substrate shall be of Eco Friendly, High impact strength, shatter proof, UV resistant, Translucent, non-flammable White polycarbonate solid sheet as per IS 14448 of not less than 3mm of reputed make Bayer / Lexan / Polymac. Light transmission shall be in the range of 60% - 90%. Provide U shaped 7mm x 1mm / 4mm x 1mm / 8 mm x 2mm gasket for tight holding and interlocking polycarbonate sheet in aluminium profile.

2. TECHNICAL SPECIFICATION FOR FLAT SIGNAGE BOARDS

2.1. NON-ILLUMINATED SIGNAGE

Non-Illuminated Double Side (Back-to-Back) Signage-

The Modular Design Signages have its openable profile of 100mm for double side shall be made of Aluminium Extrusion (Alloy 6060) sheet of 2mm with anodizing (thickness 15-20 microns) with a weight of 0.84 kg per meter ISO:9001-2008 product with premium grade anodizing and pure polyester powder coated (colour as per Railways norms and satisfactions).

The message on 3M U 180 Cost or PRS Parmacel or Avery MP1 1105 Easy Apply White/Colour Vinyl (as specified by Railways) with Over laminate of 3M 8519 Gloss Finish or PRS Parmacel or Avery DOL 10802 with eco solvent printing pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness on both sides of panel.

Providing and fixing of all accessories such as spring clips, anchoring hooks, nuts, screw hooks, slots etc. The Modular Design Signage is to be suspended from the concrete (e.g., slab, beam), trusses etc. by Mild Steel (MS) Suspender pipe including all accessories like bottom plate, locking plate, adjuster, bolts etc. Hilti fastener or equivalent brand of specified diameters are to be used where anchoring is to be done with the concrete chamber. VHB (Very High Bond) double side

adhesive tape for pasting purpose where ever required. All anchors fasteners, bolts etc. to be SS304 grade. The vinyl should have a warranty of 5 Years by Vinyl Manufacturer.

Non-Illuminated Single Side Signage-

The Modular Design Signage have its openable profile of 70mm for single side shall be made of Aluminium Extrusion (Alloy 6060) sheet of 2mm with anodizing (thickness 15—20 microns) with a weight of 0.84 kg per meter ISO: 9001—2008 product with premium grade anodizing and pure polyester powder coated (colour as per Railways norms and satisfactions).

The message on 3M U 180 Cast or PRS Parmacel or Avery MP1 1105 Easy Apply White/Colour Vinyl (as specified by Railways) with Overlamine of 3M 8519 Glass Finish or PRS Parmacel or Aven/ DOL 10802 with eco solvent printing pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness on one side of panel and other ACP will be drilled on wall.

Providing and fixing of all accessories such as spring clips, anchoring hooks, nuts, screw hooks, slots etc. The Modular Design Signages is to be suspended from the concrete (e.g., slab, beam, trusses etc.) by Mild Steel (MS) Suspender pipe including all accessories like bottom plate, locking plate, adjuster, bolts etc. Hilti fastener or equivalent brand of specified diameters are to be used where anchoring is to be done with the concrete chamber. VHB (Very High Bond) double side adhesive tape for pasting purpose where ever required. All anchors fasteners, bolts etc. to be SS304 grade. The Vinyl should have a warranty of 5 Years by Vinyl Manufacturer.

2.2. ILLUMINATED SIGNAGE

Illuminated Double Side (Back-to-Back) Signage: -

The Modular Design Signage have its openable profile of 100mm for double side shall be made of Aluminium Extrusion (Alloy 6060) sheet of 2mm with anodizing (thickness 15—20 microns) with a weight of 0.84 kg per meter ISO:9001—2008 product with premium grade anodizing and pure polyester powder coated (colour as per Railways norms and satisfactions).

The message on 3M Scotchcal 3635—20/22 Cast Blackout Vinyl or PRS Parmacel or Avery 5301 Blackout Vinyl and 3M Scotchcal 3630 Cast Coloured Vinyl or PRS Parmacel or Avery 5600 LD Translucent/Avery 5500 QM TF Coloured Vinyl (as per colour standard specified by Railways) pasted on Polycarbonate Sheet (Pioneer or Polyleathers or Laxan or PC Lite or equivalent brand) of 3mm thickness is to be used on both sides of panel. Letters of the Vinyl message to be made with plotter cut self-adhesive cast colour Vinyl.

Signage shall be illuminated from back wherever specified using Single/Multiple LED Modules each with IP 65 protection of white colour and rating of appropriate watts. Modules should be uniformly placed in a manner that at least one LED Module every 12 — 16 sq. inch of surface required illumination. Each signage should have an individual power supply adaptor for illumination of all LED installed in signage. The power supply adaptor should be placed inside signage and power supply adaptor should be connected using plugin type connector connected

to mains supply. LED to be used with five-year replacement warranty and specifications of LED module and Driver should be as per Para 2.13.

Providing and fixing of all accessories such as spring clips, anchoring hooks, nuts, screw hooks, slots etc. The Modular Design Signages is to be suspended from the concrete (e.g., slab, beam, trusses etc.) by Mild Steel (MS) Suspender pipe including all accessories like bottom plate, locking plate, adjuster, bolts etc. Hilti fastener or equivalent brand of specified diameters are to be used where anchoring is to be done with the concrete chamber. VHB (Very High Bond) double side adhesive tape for pasting purpose where ever required. All anchors fasteners, bolts etc. to be SS304 grade. The Vinyl should have a warranty of 5 Years by Vinyl Manufacturer.

Illuminated (Wall Mounted) Single Side Signage: -

The Modular Design Signages have its openable profile of 70mm for single sided shall be made of Aluminium Extrusion (Alloy 6060) sheet of 2mm with anodizing (thickness 15-20 microns) with a weight of 0.84 kg per meter ISO: 9001—2008 product with premium grade anodizing and pure polyester powder coated (colour as per Railways norms and satisfactions).

The message on 3M Scotchcal 3635—20/22 Cast Blackout Vinyl or PRS Parmacel or Avery 5301 Blockout Vinyl and 3M Scotchcal 3630 Cast Coloured Vinyl or PRS Parmacel or Avery 5600 LD Translucent/Avery 5500 QM TF Coloured Vinyl (as per colour standard specified by Railways) pasted on Polycarbonate Sheet (Pioneer or Polyleathers or Laxan or PC Lite or equivalent brand) of 3mm thickness is to be used on one side of panel and other side of panel will be of Aluminium Composite Panel (ACP) Sheet (Gurlnd or Indo bond or Alstrong or equivalent brand) of 3mm thickness. Letters of the Vinyl message to be made with plotter cut self-adhesive cast colour Vinyl.

Signage shall be illuminated from back wherever specified using Single/Multiple LED Modules each with IP 65 protection of white colour and rating of appropriate watts. Modules should be uniformly placed in a manner that at least one LED Module every 12 — 16 sq. inch of surface required illumination. Each signage should will have an individual power supply adaptor for illumination of all LED installed in signage. The power supply adaptor should be placed inside signage and power supply adaptor should be connected using plug—in type connector connected to mains supply. LED to be used with five-year replacement warranty and specifications of LED module and Driver should be as per Para 2.14.

Providing and fixing of all accessories such as spring clips, anchoring hooks, nuts, screw hooks, slots etc. The Modular Design Signages is to be fixed on wall by Mild Steel (MS) Suspender pipe including all accessories like bottom plate, locking plate, adjuster, bolts etc. Hilti fastener or equivalent brand of specified diameters are to be used where anchoring is to be done with the concrete chamber. VHB (Very High Bond) double side adhesive tape for pasting purpose where ever required. All anchors' fasteners, bolts etc. to be SS304 grade. The vinyl should have a warranty of 5 Years by Vinyl Manufacturer.

2.3. ALUMINIUM CLIP - On Frame and Aluminium Composite Panel (ACP) Sheet

Signage: -

3M U 180 Cast or PRS Parmacel or Avery MPI 1105 Easy Apply White/Colour Vinyl (as specified by Railways) with Over-laminate of 3M 8519 Gloss Finish or PRS Parmacel or Avery DOL 10802 with Eco Solvent Printing pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness and Polycarbonate Sheet (Pioneer Polyleathers or Laxan or PC Lite or equivalent brand) of 3mm thickness. Covered all around with Aluminium Extruded Openable Profile (Clip—on). Fixing of the clip—on profile and ACP sheet on the concrete wall is to be using drill machine etc. The vinyl with 5 Years Warranty by Vinyl Manufacturer.

2.4. Retro Reflective Sheet and Aluminium Composite Panel (ACP) Sheet Signage: -

3M DGS Reflective 4000 series or PRS Parmacel or Avery Omnicube™ T—11000 & W—11000 Series Reflective Sheet with plotter cut message of 3M DGS Reflective 4000 series or PRS Parmacel or Avery Omnicube™ T—11000 & W—11000 Series Reflective Sheet pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness. The Retro Reflective Sheet with 5 Years Warranty by Retro Reflective Manufacturer.

2.5. Vinyl and Aluminium Composite Panel (ACP) Sheet Signage: -

3M 11 180 Cast or PRS Parmacel or Avery MPI 1105 Easy Apply White/Colour Vinyl (as specified by Railways) with Over-laminate of 3M 8519 Gloss Finish or PRS Parmacel or Avery DOL 10802 with Eco Solvent Printing on it and pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness. The vinyl with 5 Years Warranty by Vinyl Manufacturer.

2.6. Suspender: -

Mild Steel suspenders rods/square pipe of size 38x38x2.6 mm including all accessories like adjuster, stoppers, sleeves, bolts, tee, etc. All Mild Steel (MS) suspender, to be Polyurethane painted, shall be Hot Dipped Galvanized after fabrication and before painting and installation.

The signage frame is to be suspended from metal supporting members or concrete e.g., slab or beam, trusses or purlins etc. with lengths as per site conditions including all accessories like adjuster, stoppers, sleeves, bolts etc. complete as per fabrication drawing. All mild steel, to be Polyurethane painted, shall be Hot Dipped Galvanized after fabrication and before painting. Entire assembly of suspension system is to be Polyester powder coated. Hilti fasteners or of equivalent brand of specified diameters are to be used where anchoring is to be done with the concrete members. The mounting surface shall be required or finished as per surrounding area complete at no extra cost.

3. TECHNICAL SPECIFICATION FOR CIRCULATING AREA SIGNAGE BOARDS

- a) 3M DGS Reflective 4000 series or PRS Parmacel or Avery Omnicube™ T—11000 & W—11000 Series Reflective Sheet with plotter cut message of 3M DGS Reflective 4000 series or PRS Parmacel or Avery Omnicube™ T—11000 & W—11000 Series Reflective Sheet pasted on Aluminium Composite Panel (ACP) Sheet (Gurind or Indo bond or Alstrong or equivalent brand) of 3mm thickness. The Retro Reflective Sheet with 5 Years Warranty by Retro Reflective Manufacturer. ACP Sheet should be fixed on frame made of 25mmX3mm SS flat and provided with Stainless steel pipe frame on all four sides with pipe of 30mm to 50mm dia (depending on the size of board).
- b) Sign Board to be fixed using stainless steel pipe of 50mm to 100mm dia (depending on the size of board).
- c) All stainless-steel work shall conform to the requirements of IS:6911/1992 (equivalent BS 1449 Part 2). Stainless steel shall be low carbon chromium nickel austenitic steel type 302 or 304. The surface of stainless steel shall be in No. 4 brushed in a horizontal direction to achieve a satin polish grain.
- d) For single sided board, Backside of Aluminium sheet to be painted with two or more coats of epoxy paint over and including appropriate priming coat
- e) For “Station Welcome” board mounting arrangement may be decided as per local conditions like width of road, availability of dividers etc. However, the mounting arrangement must be suitable covered with SS sheet of appropriate thickness.

References

1. Signage Policy issued by Ministry of Railways vide letter dated 97/TG. II/39/11/Signages dated 11-03-1999
2. “Manual for Standards and Specifications for Railway Stations” issued by Ministry of Railways in June 2009
3. DMRC Signage Metro Stations dated 07-09-2017
4. Office Memorandum issued by Department of Official Languages, Ministry of Home Affairs
5. Indian Railways Works Manual
6. Guidelines on accessibility of Indian Railway Stations and facilities at stations for differently abled persons (Divyangjan) and passengers with reduced mobility.
7. Harmonized Guidelines & Standards for Universal Accessibility in India, 2021 issued by Ministry of Housing and Urban Affairs
8. IS 9457:2005, Safety Colours and Safety signs – Code of Practise
9. Wayfinding Design Guidance Compliance (NR/GN/CIV/300/01, December 2020)
10. National Building Code of India, Volume 1, 2016
11. Accessibility Design Manual: 1-Urban Designs: 2-Signage (un.org)
12. IRC: 67-2001, Code of Practice for Road Signs
13. IS 9583: 1981: Specifications for Emergency Lighting Units.
14. <https://IndianRailways.gov.in/Railwayboard/prdirectorat/uploads/pdf/IR%20logos.pdf>.

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